...OLOGY DEPT.

EDISON ELECTRIC INSTITUTE BULLETIN

DEC...
...ETIN

DECEMBER, 1938

ACCOUNTING NUMBER

The Joint National Accounting Conference — BERNARD S. RODEY, JR. — 505

Simplification of the Utility Industry's Reports to Federal Agencies . . . . . T. W. NEEL — 509

Federal and State Regulations, and Management Attitudes . . . . . E. W. MOREHOUSE — 512

Problems in Uniform Utility Accounting . . . CHARLES W. SMITH — 515

The 1938 Depreciation Problem . . . . . C. E. KOHLHEPP — 517

Causes of Property Retirements . . . . . H. C. DAVIDSON — 519

Depreciation Principles . . . . . H. L. GRUEHN — 521

Present Views of Authority on Depreciation . . H. C. HASBROUCK — 523

Some Engineering Factors Affecting Obsolescence . . D. M. JONES — 527

Further Comments on Depreciation — MAURICE SCHARFF AND L. R. NASH — 531

An Accountant Is Perplexed . . . . . FRANCIS J. BRETT — 533

Engineering and Capital . . . . . C. W. KELLOGG — 537

Prime Movers Committee Meeting 540

The E.E.I. and Its Activities Relative to the T.V.A. 541

Highlights of Commercial Committee Activity for 1939 . . . . . C. E. GREENWOOD — 545

Personnel of E.E.I. Commercial Committees, 1938-1939 548

Conventions and Meetings, 552

EDISON ELECTRIC INSTITUTE

STATISTICAL DATA OF THE ELECTRIC LIGHT AND POWER INDUSTRY

Compiled Monthly by the Edison Electric Institute—Covers 100% of the Industry

DURING THE MONTH OF SEPTEMBER

	1938	1937	%
	SOURCE OF ENERGY		
Kilowatthours Generated (Net)			
By Fuel Burning Plants	6,146,338,000	6,809,628,000	− 9.7
By Water Power	3,187,695,000	2,949,160,000	+ 8.1
Total Generation	9,334,033,000	9,758,788,000	− 4.4
Net Purchases			
From Other Sources	330,544,000	286,063,000	+15.5
Net International Imports	102,092,000	92,593,000	+10.3
Total Purchased Power (Net)	432,636,000	378,656,000	+14.3
Total Input	**9,766,669,000**	**10,137,444,000**	− 3.7
	DISPOSAL OF ENERGY		
Total Sales	**8,190,226,000**	**8,642,639,000**	(a)
Energy Not Reported as Sold			
Used in Electric Railway Department	27,741,000	45,280,000	(a)
Used in Electric and Other Departments	143,704,000	130,042,000	(a)
Furnished Free or Exchanged in Kind	1,554,000	(Not Shown)	(a)
Total Not Reported as Sold	172,999,000	175,322,000	(a)
Total Energy Accounted For	**8,363,225,000**	**8,817,961,000**	− 5.2
Losses and Energy Unaccounted For	1,403,444,000	1,319,483,000	+ 6.4
Total Output (To Check Above **"Input"**)	**9,766,669,000**	**10,137,444,000**	− 3.7

CLASSIFICATION OF KILOWATTHOUR SALES

Based on FPC Classification—September 1938		**Based on EEI Classification—September 1937**	
Residential or Domestic	1,610,735,000	Domestic	1,480,525,000
Rural	(Allocated to Other Classes)	Commercial—Small Light and Power	1,528,194,000
Commercial and Industrial	5,785,574,000	Commercial—Large Light and Power	4,933,647,000
Public Street and Highway Lighting	155,533,000	Municipal Street Lighting	188,043,000
Other Public Authorities	193,683,000	Street and Interurban Railways	329,979,000
Sales to Railroad and Railways	407,482,000	Electric Steam Railroads	97,245,000
Interdepartmental	32,464,000	Municipal and Miscellaneous	85,006,000
Other Sales	4,755,000		
Total Sales	8,190,226,000	Sales to Ultimate Customers	8,642,639,000

CLASSIFICATION OF CUSTOMERS

Based on FPC Classification—September 30, 1938		**Based on EEI Classification—September 30, 1937**	
Residential or Domestic	22,961,773	Domestic	22,282,652
Rural	(Allocated to Other Classes)	Commercial—Small Light and Power	3,861,459
Commercial and Industrial	4,578,034	Commercial—Large Light and Power	568,030
Public Street and Highway Lighting	26,337	Municipal Street Lighting	34,325
Other Public Authorities	74,733	Street and Interurban Railways	321
Railroad and Railways	281	Electric Steam Railroads	26
Interdepartmental	284	Municipal and Miscellaneous	36,460
Others	3,513		
Total Customers	27,644,955	Total Ultimate Customers	26,783,273

REVENUE (b)

Based on FPC Classification—September 1938		**Based on EEI Clasification—September 1937**	
Revenue from Sales (Excluding Sales to Other Electric Utilities)	$183,712,900	Revenue from Ultimate Customers	$185,828,200
Other Revenue	2,234,700		
Total Revenue	$185,947,600		

ESTIMATED DOMESTIC ELECTRIC SERVICE RATIOS

(For the 12 Months Ended September 30th)

	1938	1937	%
Kilowatthours per Customer	841	785	+ 7.1
Average Annual Bill	$35.91	$35.00	+ 2.6
Revenue per Kwhr	4.27¢	4.46¢	− 4.3

(a) Data for two years not strictly comparable.
(b) Data not comparable because of an unascertainable amount of "Revenue" in September, 1938, which may or may not have been included in the 1937 data.

Vol. 6, No. 12, EDISON ELECTRIC INSTITUTE BULLETIN; published monthly. Entered as second-class matter Aug. 17, 1933, at the post office at Philadelphia, Pa., under the act of March 3, 1879. Publication office, 56th and Chestnut Sts., Philadelphia, Pa. Editorial office, 420 Lexington Ave., New York, N. Y. Subscription rate $2.00 per year in the United States; $3.00 per year in Foreign countries.
The Edison Electric Institute does not assume responsibility for, nor necessarily endorse or approve, statements made by contributors to the BULLETIN.

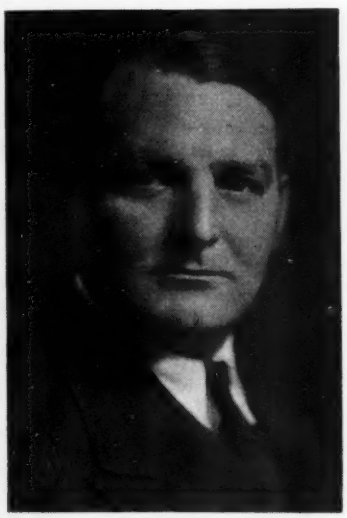
EDISON ELECTRIC INSTITUTE BULLETIN

Volume 6 DECEMBER, 1938 No. 12

The Joint National Accounting Conference

By Bernard S. Rodey, Jr.

Chairman, General Accounting Committee, E.E.I.



MR. RODEY

MORE than 600 gas and electric accounting representatives attended the Second Accounting Conference in Chicago, Illinois, on December 13 and 14, which was sponsored jointly by the Edison Electric Institute and the American Gas Association. The delegation attending the conference represented practically every state in the union, including ten from the Pacific Coast and eight from Canada.

The conference establishes an all-time record for the character of the program presented and the interest displayed by those in attendance. A precedent was also established for further cooperation on the part of the accountants and representatives of the industry, with state, federal and the many other agencies dealing in accounting work and a record set for frankness in presenting the various topics on the program.

Following the opening remarks of the Chairman of the Edison Electric Institute Accounting Committee, and Mr. H. A. Ehrmann, Chairman of the Accounting Section of the American Gas Association, Mr. George F. Mitchell, President of the Peoples Gas Light & Coke Company of Chicago, welcomed the accounting representatives to Chicago, extending an invitation to those present to visit the offices of his company while in Chicago. Mr. Mitchell left with the conference the thought that additional burdens imposed by the newer state and federal legislation prompted him to suggest that ". . . one of the principal jobs of the accountants in the industry today is to study their methods and practices in order that the accounting expenses may be reduced to a minimum, consistent with the work that has to be done."

Space does not permit publication of all the papers presented at this accounting conference. Thirty papers were given at the general sessions alone and at the specialized concurrent committee meetings on Monday some twenty-five or more additional papers were read and discussed, not to mention many prepared or extemporaneous discussions.

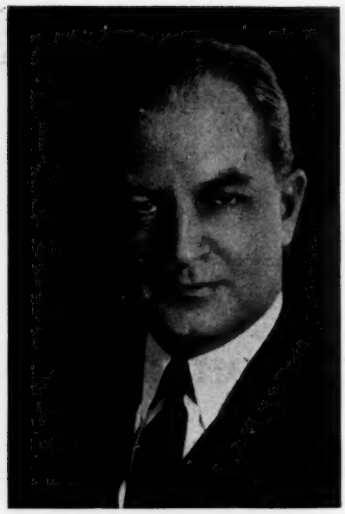
Printed in this issue are the complete series of papers dealing with the subject of depreciation, the papers by Dr. Morehouse and Mr. Charles W. Smith, and the opening and closing papers of the conference by Mr. W. T. Neel and Mr. Francis J. Brett, respectively.

Mr. B. S. Rodey, Jr., chairman of the E.E.I. General Accounting Committee, desires that readers understand that the conference papers which are printed herein should be taken to represent the personal thoughts and viewpoints of the authors in respect to the subject matter covered at the time they were presented, and that they should not be taken as expressive of any consensus of opinion by the respective technical accounting committees, associations represented, or by those attending the conference.

MR. EHRMANN

Tuesday Morning

The first paper of the conference was delivered by Mr. L. L. Dyer, Controller of the Lone Star Gas Company, Dallas, Texas, on "Accounting Organization Problems." Mr. Dyer's paper stressed



G. A. STEWART
Past Chairman, E.E.I. Accounting Committee

the importance of organizations and control, particularly in these times when more and more reports are being required by various governmental agencies and by management. He indicated that unsound organization and lack of control may lead to excessive accounting costs. He urged accounting people to be ever on the alert for new ideas and changes in the art which might materially reduce the burden of accounting.

Mr. W. T. Neel of the Philadelphia Electric Company, presented a joint paper prepared by himself and Mr. W. G. Bourne, Jr., of The Commonwealth & Southern Corporation on "Elimination of Duplication of Reports to Governmental Bodies." This paper is reproduced in full in this issue.

Associate Professor of Accounting, Willard J. Graham, of the University of Chicago, spoke on "Accounting Education, Ethics and Training," stating that although in general accountants are not required to be college trained, one state at least has made such a requirement.

A discussion of the depreciation problem for income tax purposes as it relates to public utilities was presented by Mr. R. C. Staebner, Chief, Public Utilities Section, Internal Revenue Bureau, Washington, D. C. Mr. Staebner used as one of the features of his talk Section 23 (1), and Art. 23 (1)—1 from the Income Tax Law concerning the allowance for exhaustion, wear and tear of property used in the trade or business, and with obsolescence.

He stated that fundamentally there were two problems involved in the determination of depreciation deductions, namely: "1. The total amount or basis to be ultimately recovered, and 2. The amount to be deducted in a given taxable year." Mr. Staebner pointed out that the Bureau of Internal Revenue fully realized no formula has ever been made or may be devised for determination of depreciation and necessarily judgment must be exercised in all particular cases after careful consideration of the pertinent factual data.

A paper summarizing the results of a job analysis investigation was presented at the close of the Tuesday morning session by Mr. R. A. Hornby, Vice-President of the Pacific Lighting Company, San Francisco, California. Mr. Hornby's paper was accompanied by charts and motion pictures of several accounting operations and the paper added greatly to the stimulus of efforts toward more careful analysis of accounting procedures in order to effect economies.

Tuesday Afternoon

At the Tuesday afternoon session Mr. S. J. Barrett of the Peoples Gas Light and Coke Company presented a paper on "Taxation Accounting," discussing important features of depreciation accounting for income tax purposes. He laid emphasis on the various detailed phases of the differences between utility accounting and accounting for income tax reckoning, stating the accounting problems arising in connection with federal income taxes are usually more numerous and complex because of the nature of the revenue acts rather than the problems relating to state, local and other forms of taxes. He noted that "the objective of tax accounting for federal income tax purposes is, of course, the correct determination of taxable net income as defined by law and in accordance with the regulations, rulings, and decisions interpreting the various provisions of the law. Taxable net income is a statutory conception of net income and may be different in many respects from the actual net income as shown by the books of account."

In conclusion Mr. Barrett answered the question as to whether there were possibilities for economies in taxation accounting by stating: "Simplification of tax laws and the related regulations and greater uniformity in the method of determining the tax liabilities under the various laws, would, no doubt, contribute much toward minimizing the costs of tax compliance. Any movement having such an objective, should certainly have the encouragement and support of the utility industry."

F. B. FLAHIVE
Vice Chairman, A.I.S.A. Accounting Section

It is believed Mr. Barrett's paper may go a long way toward clearing up much of the misunderstanding concerning the differences in uniform utility accounting under regulation, and accounting for income tax under the internal revenue statutes.

A feature of the conference was the appearance of several representatives of the regulatory authorities. Dr. E. W. Morehouse, Chairman, Accounting Committee, National Association of Railroad & Utilities Commissioners, dealt with the subject of "Federal and State Regulations and Management Attitudes." Dr. Morehouse's paper will be found elsewhere in this issue.

Beginning at 3:00 P. M. the remainder of Tuesday afternoon was devoted to the subject of plant accounting and related matters, during which several papers were presented, with general discussions, including the following:

Mr. H. D. Anderson, American Gas and Electric Service Corporation, "Comments on Continuing Property Records and Original Cost Determination."

Mr. F. M. Hunter, of Hannum, Hunter, Hannum & Hodge, Chester, Pa., "Legal Aspects of New Uniform Accounting Systems."

Mr. G. M. Vesselago, Day & Zimmermann, Philadelphia, Pa., "Methods of Installing Continuing Property Records."

Mr. H. M. Tickle, The Commonwealth & Southern Corp., Birmingham, Alabama, "Practical Experience in Original Cost Determination."

Messrs. H. P. Taylor of the Wisconsin Public Service Corporation, Milwaukee, Wisconsin, and Mr. A. A. Lipschutz of the Philadelphia Electric Company, Philadelphia, Pa., presented papers on "Coordination of the Accountant and the Engineer in the Determination of Original Cost," Mr. Taylor taking the part of the accountant and Mr. Lipschutz that of the engineer.

The plant accounting program was summarized by Mr. J. V. Cleary of the Consolidated Edison Company of New York, Inc., who in addition, outlined some of the problems and their solutions in a paper entitled "Perpetuation of Original Cost Records."

These plant accounting papers will subsequently be made available to members. Unquestionably many economies may result to member companies through a thorough perusal of these matters.

Informal Dinner

Some 350 accounting representatives and their guests attended an informal dinner at the Palmer House, Tuesday evening. Major Alexander Forward, Managing Director of the American Gas Association acted as toastmaster and introduced the speakers of the evening: Dr. H. B. Dorau, Professor of Economics and Chairman of the Department of Public Utilities, New York University; Mr. Henry C. Perry of The Heywood-Wakefield Company, Gardner, Massachusetts, representing the Controllers' Institute of America, and Mr. Bernard F. Weadock, Vice-President and Managing Director of the Edison Electric Institute.

Dr. Dorau dealt with the technological changes which have resulted in reshaping accounting practices during the past decade in an endeavor to make accounting serve the needs of present-day business.

In stating the proposition of what effects accounting have had on economics, or economics on accounting, he expounded the point that an economist can at times undertake a somewhat reckless exploration into a field in which he has no professional standing, with considerably less risk than could an accountant with a reputation to sustain in his own field of proficiency. "It has in each domain," he stated, "become so dangerous to be wrong, that one often does not take the chance of being right."

"If we have learned anything from past discussions of the relation of economics and accounting, it is that nothing is to be gained by attempting to impose the organizing principles of economics on accounting or imposing the methodology of accounting on economics; yet accounting becomes more useful as it approximates economic truth."

Dr. Dorau concluded with the thought that "The impact of economics on accounting, particularly public utility accounting, will probably be nil since the form and procedure are so frozen by the prescribed classifications. Possibly instead we can hope that there will be an impact of economics on the *accountant*. Then so far as the law allows, accounting results may be intelligently analyzed and given economic meaning. The next generation of accountants will be practising economists. This generation might try. The gas and electric industries will benefit to the extent to which the effort is successful, because social economy is a requisite to an enduring private economy."

The talk by Mr. Henry C. Perry, on "Accounting After the First 100 Years" was both humorous and instructive.

The serious import of Mr. Perry's speech was to illustrate homely and clearly the tremendous changes which have taken place in the past 100 years in business, further indicating the effects of these changes in the multiform requirements in accounting and bookkeeping.

Mr. Bernard F. Weadock spoke briefly on "The Accountant's New Responsibilities."

Mr. Weadock made a plea for cooperation between the various agencies of the government and the public utilities and said he believed cooperation should not be considered to be a one-way street. "Cooperation," he stated, "is for a two-way traffic, and it is my hope and my ambition that the public know and understand how far we have gone in our efforts at cooperation, with government, with the people, and with those to whom we owe an obligation."

A feature of the dinner were solos rendered by both Mr. Ehrmann, and Mr. Rodey. Although the renditions of the two committee chairmen were not lacking in enthusiasm or originality, they were sadly overshadowed by a song very graciously sung by Mrs. Willard J. Graham.

Wednesday Morning

The Wednesday morning session was featured by a frank, open presentation of one of the most controversial points, that of accounting for depreciation, ably set forth by members of a joint Depreciation Committee of the A.G.A. and the E.E.I. comprising Messrs. C. E. Kohlhepp of the Wisconsin Public Service Corp., Mr. H. C. Hasbrouck of the Associated Gas & Electric System, Mr. H. L. Gruehn of the Consolidated Gas Electric Light and Power Company of Baltimore and Mr. H. C. Davidson, Consolidated Edison Company of New York Inc., supported by a splendid paper delivered by Mr. D. M. Jones, General Electric Company, Schenectady, New York, with floor discussion by Mr. Maurice R. Scharff, Consulting Engineer of New York and Mr. W. V. Burnell of Stone & Webster Service Corp., Boston, Mass., speaking in place of that noted authority on depreciation, our old friend Mr. L. R. Nash. This symposium on Depreciation Accounting is printed complete in this issue.

Mr. Kohlhepp, Chairman of the Depreciation Committee of the E.E.I., covered "Outline of Aims and Purposes of the Work of the Depreciation Committee." Mr. Gruehn presented capably and forcefully the basic concepts concerning the contrast between a determination in loss of value and accounting for depreciation. Mr. H. C. Davidson discussed the need for more information concerning causes of retirements, giving an interesting outline of the needed information, as well as some interesting facts concerning the limited experience thus far available on this all-important phase of research and study, concluding with a plea for cooperation from member companies in the interest of obtaining more factual information.

Mr. Hasbrouck, who is Chairman of the Depreciation Accounting Committee of the American Gas Association, summed up in a splendid manner the matter of depreciation as discussed by the previous three speakers, and in addition went rather pointedly into cases of treatment and mistreatment of the subject of depreciation by various authorities. Interesting highlights of his presentation concerned:

1. Property-life Insurance (a new development)
2. Juridical Analysis
3. A plea for more mutual understanding between regulatory commissions and business managements.

In the absence of Mr. E. C. Christensen of Price, Waterhouse & Co., New York, representing the American Insti-

tute of Accountants, his paper concerning "The Auditor's Viewpoint of Public Uutility Accounting" was presented by a partner, Mr. Roy Andreae.

Concerning original cost and depreciation accounting, Mr. Christensen felt many of the newer provisions appearing to run counter to present-day accounting practice find their justification on the whole in the desire for readily available information in rate proceedings. He expressed the view that accountants recognized the days of regulation are here to stay and they must adapt their practices to the changing conditions. He expressed the hope "that the fallacy of some of the theories underlying these new regulations, even so far as they will affect the all-important rate-making, may become apparent to the regulatory authorities within a reasonably short time, and thus bring about further revision, which I trust will give due consideration to the necessity for sound financial accounting by the utilities."

A discussion of "The Budget; an Executive's Viewpoint," was made by Mr. T. O. Kennedy of the Ohio Public Service Company, Cleveland, Ohio. In addition to dealing with the broader aspects of the budget, Mr. Kennedy cited some concrete examples of the application of budgeting to practically all departmental functions, including merchandising.

Wednesday Afternoon

Mr. K. C. Campbell, of the Detroit Edison Co., Detroit, Mich., the first speaker at this session, condensed a paper prepared by him on "Materials and Supplies—Velocity and Salvage Operations." This paper was supplemented with a series of photographs taken from some of the important salvaging operations of Mr. Campbell's company.

The subject of "Customers' Deposits —Economics" was dealt with by Mr. James A. Schultz of the Consumers Gas Company, Reading, Pennsylvania. Mr. Schultz sketched the close scrutiny of economics and deposits from the standpoint of their partial elimination, in view not only of the resulting economies to be achieved due to the savings in interest and accounting overhead, but also due to the improved public relations resulting therefrom.

The last speaker of the afternoon session was Mr. Charles W. Smith, Chief, Bureau of Accounts, Finance and Rates, Federal Power Commission, Washington, D. C., who spoke on "Problems in Uniform Utility Accounting." Mr. Smith pointed out in his paper, which appears in full elsewhere in this issue, a number of the outstanding problems which are confronting both the regulatory commissions and the companies.

The illness of Mr. Frank J. Brett of the Niagara Hudson Power Company, prevented the personal presentation of his paper, "An Accountant is Perplexed."

Mr. Rodey, in acknowledging and discussing Mr. Brett's paper, expressed appreciation of the conference for the many unique and interesting points brought out in it, and suggested that the paper, which is published in full elsewhere in this edition is worthy of scrutiny of the message which Mr. Brett has brought.

Specialized Committee Meetings at the General Accounting Conference

At this time only a brief report can be made concerning the meetings of the several specialized accounting committee groups which were held concurrently on Monday, December 12th. In all some 350 representatives attended these several meetings. As an indication of the enormous interest we are reliably informed that several evening meetings were scheduled following the regular business sessions. In addition it was quite obvious that all delegates present were out for real blood in the way of obtaining technical information and ideas for improvement.

Plant Accounting

The Plant Accounting and Record enthusiasts stole the show in point of view of general interest. With an overall attendance exceeding at times 150 of their own members and guests, comprising other conference delegates, their arguments concerning retirement units, units of property, maintenance vs. in and out of Plant Account charges, construction overheads, original cost determination, etc., were both loud and hot at times. We take our hats off to Hal Anderson and John Cleary for safely steering the ship during this stormy session.

Commercial Accounting

The Commercial Accounting Committees and guests ran the Plant group a close second in attendance and certainly were not outdone by any of the groups in interest and enthusiasm. The idea of getting at the meat of the economies concerning their accounting operations took with a vengeance and many of the delegates "shot the works," so to speak in frankness concerning accounting costs. It is not too early to predict a revitalized interest in this all-important phase of accounting. Messrs. K. E. Boyle, H. E. Cliff, E. N. Keller, and others presiding and delivering papers are to be congratulated on a splendid session.

Classification of Accounts

This Committee group, led by R. B. Curran and J. H. Morrell, wrestled through a review and analysis of many of the most recent interpretations that have been issued in connection with the Uniform Accounting System. In view of their reported discussions and debates concerning the correctness and consistency of these interpretations, we may well ponder with them the desirability of raising too many questions for interpretation, which, if obtained formally, may lead to inflexibility or over-rigidity of the uniformity concept.

Depreciation

The depreciation committees of the E.E.I. and A.G.A. held a joint closed session exceeding in present importance, perhaps, all of the other Monday activities. At least we are sure, by the serious way the top-notch membership, aggregating about 70 members and their

(*Continued on page* 526)

Simplification of the Utility Industry's Reports to Federal Agencies

By T. W. Neel
Philadelphia Electric Company

A paper presented before the Joint National Accounting Conference of the Edison Electric Institute and the American Gas Association, Chicago, Ill., December 12-14, 1938

I

YOU will be gratified to hear that a movement is under way to curtail some of the burden placed on industry by the Federal Government. The large number of reports, the rapid growth in reports and the quantity of information required by Federal, State and local governmental agencies today is a real problem, as you know.

In the case of Philadelphia Electric Company, the number of reports required has increased at least three times during the last ten years and the cost of making such reports has increased 13 times, the relatively greater increase in costs being an indication of the added complexity in present day requirements. The present volume and cost of these reports for the Company and subsidiaries in one year's time was:

MR. NEEL

	Federal	State and Local	Total
Number of reports	1,850	1,037	2,887
Number of pages, including exhibits	23,974	34,829	58,803
Approximate minimum cost	$313,000	$89,000	$402,000

The number of reports, 2,887, include all filings with governmental agencies such as regular and special reports, tax returns, tariff filings, applications and registration statements. The assembling and handling of this large number of reports when as a rule there are limiting dates to be met and in the face of working hours being limited by law, is another problem familiar to you all.

The cost of $402,000 is large because of applications and registration statements, some of which may not recur annually but they will recur with each sale of securities, changes in corporate structure, and similar events that require approval of regulatory bodies.

The many duplications between these reports give evidence of the lack of cooperation between govenmental agencies, and indicate that a vast amount of information is collected of which little or no practical use is made. It is difficult to give a comprehensive picture of the duplications in Federal reports (not to mention State reports); but the following illustrations may well raise the question as to why such duplications are necessary. For example, why should it be necessary, in one year's time, to report:

Name, title and address of officers and directors	5 times
Compensation of officers and directors	4 times
Company balance sheet	7 times
Authorized capital stock	5 times
Map of area served and location of properties	5 times

There are at least 75 general items similar to the above which are duplicated at least twice and in many cases up to seven times, and there are other forms not analyzed in which these same items are duplicated further.

Doubtless our experience with duplications and in the volume and cost of reports is typical for many companies, but it would be most interesting to know what the experience of other utilities is and what these costs run to for the electric industry as a whole. Realizing full well the weakness of such an estimate, we have made an effort to arrive at an approximation of the cost to the industry. Based on the costs to Philadelphia Electric Company of making Federal reports; and taking into account the size and number of electric enterprises as reported by the Edison Electric Institute, and further allowing a safety factor to avoid overstatement, it is estimated that the industry's cost of making reports to Federal agencies range from $10,000,000 to $15,000,000 per year. This does not include costs of State reports.

We in the utility industry are not alone in our concern about governmental reports. In a recent survey covering all industries (67 companies replying) *Forbes Magazine* found the following results:

(1) In 10 years the number of government reports filed by the average company has increased nearly 10 times, rising from 9,600 reports per year ten years ago to 92,800 reports today.

(2) During the same 10 years the annual cost to the average company of preparing these reports has increased 5.4 times, jumping from $22,700 ten years ago to $122,800 today.

The present average of 92,800 reports per company appears quite modest when compared with the experience of some individual companies. Again quoting from the Forbes' figures: A food-products company estimates 510,000 reports per year, a New York City bank counts up 280,000, a meat packer 141,628, a public utility 75,000, a railroad 102,360, a chain store system 627,261, and to an

oil company falls the distinction of filling out the greatest number of returns annually—it compiles 1,135,000 reports at a cost of $1,250,000.

II

With the requirements of governmental agencies reaching such vast proportions there is ample room for improvement, simplification and consolidation, and any movement in that direction should receive our wholehearted cooperation. How effective the movement may be or how much relief will be obtained cannot, of course, be foretold. However, it is encouraging that the need has been recognized by President Roosevelt and that the Federal Administration is taking the initiative.

President Roosevelt in a letter to the Central Statistical Board, dated May 16, 1938, indicated that he is disturbed over the condition and requested the Board to make recommendations for improving the situation. His letter reads in part as follows:

"I am concerned over the large number of statistical reports which Federal agencies are requiring from business and industry. In view of comments that come into this office, I desire to know the extent of such reports and how far there is duplication among them. Accordingly, I am requesting the Central Statistical Board, under the authority of Section 1 of the Act creating the Board, to report to me on the statistical work of the Federal agencies, with recommendations looking toward consolidations and changes which are consistent with efficiency and economy, both to the government and to private industry.

"With a view to reducing the amount of duplication in statistical reports, will you indicate the principal points at which the enactment of legislation by the Congress appears to be necessary in order to effect consolidations or changes, with the recommendations of the Board regarding them?"

The Central Statistical Board is an organization created by Congress in 1935. It is the outgrowth of the Federal Statistical Board established in 1931 by President Hoover. Its purpose, as stated in the Act, is "to plan and promote the improvement, development, and coordination of, and the elimination of duplication in, statistical services carried on by or subject to the supervision of the Federal Government, and, so far as may be practical, of other statistical services in the United States."(*) Certainly its purpose is a worthy one, and deserves our earnest support.

In collaboration with the Central Statistical Board, the Business Advisory Council for the Department of Commerce through its members from the various industries of the country, invited these industries to furnish the Board with comments and information on the problem of governmental reports that would be useful in developing the report requested by President Roosevelt.

In this connection, Philadelphia Electric Company as a representative operating company was asked to make an analysis of its experience with respect to reports filed with Federal agencies, and a similar study was requested of The Commonwealth & Southern Corporation as a representative holding company. These studies were made in the limited time available and filed with the Central Statistical Board. Mr. W. G. Bourne, Jr., Treasurer of The Commonwealth & Southern Corporation and myself then discussed the reports and recommendations with Mr. Copeland, Executive Secretary of the Board, and members of his staff. Mr. Copeland requested certain additional information which was furnished in a supplementary report. Also at his suggestion, the Controllers' Institute of America was asked to study the mechanical problems in connection with preparing Federal reports and to offer comments and recommendations to the Board, to which representatives of the Institute agreed.

Mr. Copeland was most appreciative of our efforts to cooperate with the Board and recognized the industry's problems with respect to governmental reports. His sympathetic attitude and effort may develop some relief insofar as it is in his power to do so. Other industries have supplied him with data from which, together with the board's experience with the Federal agencies and its understanding of the difficulties concerned, a report will be prepared of the conditions found, including recommendations for their betterment. The Statistical Board's report is to be in the President's hands by the first of the year.

Concerning the preparation of this report Mr. L. A. Huston, in the *New York Times,* Dec. 4, 1938, says in part:

"The task of preparing the report is proving a mountainous one for the board because there is hardly a government agency in the national capital that does not deal with statistics.

"The machinery that, day after day and week after week, grinds out plain and fancy compilations of figures for multitudinous purposes probably uses more pencils, ink and paper, more typewriters, tabulators, comptometers and slide rules, employs more people, requires more office space, sends out more questionnaires and report blanks and pries more assiduously into the affairs of the population than any other functionary machinery of the government.

"As nearly as anyone knows there are about 150 agencies engaged in the collection of statistics for departments and agencies of the Federal Government in Washington.

"Many of the Statistical agencies function independently, in so far as headship and personnel are concerned, within the various departments and bureaus. There are about twenty-five independent establishments in Washington which have to do with the administration of an act of Congress and each may have several units which collect, prepare or analyze statistical information essential to the administration of the law."

III

In the analysis submitted by Philadelphia Electric Company emphasis was placed on the following points:

(1) the large number of documents filed during a year, including periodic and special reports, questionnaires, applications, tax returns, and tariff filings:

(2) the volume of such information required;

(3) the cost to the Company of preparing such reports, not including the cost of basic records necessary to give the required information;

(4) the clerical problem of compiling these reports at the busiest time of the year and within a limited period of time;

(5) the mechanical problems (due to forms, paper and instructions) in the preparation of the multiple copies required;

(6) the duplication of information requested by different Federal agencies and in different reports and filings in the same agency (this item was discussed and pointed out in considerable detail);

(7) recommendations for reduction of the number of reports and elimination of duplication.

Subsequently a supplementary discussion was forwarded to the Board concerning:

(8) the duplication between Federal and State reports and the problems related thereto;

(9) the diversity of accounts and records necessary to be maintained by the utility because of conflicting accounting requirements and definitions;

(10) the difficulties arising from inadequate, incomplete and indefinite instructions in the Federal laws and regulations.

Our recommendations consisted of two parts: (1) general recommendations, which in some respects may be more ideal than practical from the Federal viewpoint; and (2) specific recommendations, in connection with various reports and forms and the items included therein. Our general recommendations included the following suggestions:

1. For regular periodic reports, a single annual report form should be adopted, consolidating *all* information requested by *all* Federal agencies. This report should be so developed that information required by different agencies could be reproduced by pho-

(*) From Page V, Second Annual Report of Central Statistical Board, January 1, 1935, to June 30, 1936.

tostat by a central governmental agency receiving the report.

2. If this consolidated report is found impracticable, the same forms and schedules (with uniform definitions and requirements) should be used in reporting the same subject in different reports.

3. For special applications and registration statements, a master form should be used, consolidating all the items and schedules required by the different Federal acts (with uniform definitions and requirements). An application or statement filed for a particular purpose would then include only such items and schedules as are applicable.

4. The present limited provisions for "incorporation by reference" of material that is filed with certain Federal agencies should be extended.

5. Monthly and interim reports should be eliminated or changed to an annual basis wherever possible; schedules and items within reports should be eliminated wherever they serve no useful purpose.

6. The filings of periodic or regular reports should be spread out over a longer time to level off the peaks.

7. To aid in producing multiple copies of reports, paper should be thin enough to enable typing clear carbon copies; it should suffice to file only one copy in permanent black ink with other copies reproduced by hectograph or otherwise.

Our specific recommendations relating to various report forms gave suggestions and comments for the simplification of report forms now in use, in case still greater simplification cannot be obtained. The following are a few of the recommendations made on specific forms:

There are 4 report forms to the Federal Power Commission dealing with electric energy crossing state lines. This reporting could be simplified by eliminating all but one of the forms.

It is necessary for some companies to file two annual reports with the Securities and Exchange Commission—Form U5S under the Holding Company Act and Form 10-K under the Securities Exchange Act. These reports contain substantially similar information and it is suggested that companies filing Form U5S should be exempt from filing Form 10-K, as the one form should suffice for both acts.

On new security issues some companies must file 3 forms—Form A-2 under the Securities Act, Form 8-A under the Securities Exchange Act, and Form U-7 or Form U6B-1 under the Holding Company Act. All these forms contain substantially similar information and it is suggested that companies filing Form A-2 should not be required to file the others.

There are 5 forms required to be filed with the Securities and Exchange Commission covering reports of officers' and directors' security holdings—Forms 4, 5 and 6 under the Securities Exchange Act and Forms U-17-1 and U-17-2 under the Holding Company Act. These 5 forms could very well be combined into 2 forms, one for initial reporting of securities held and the other for reporting security changes, to meet the requirements of both acts.

In the study made by the Commonwealth & Southern Corporation, particular attention was given to the duplications in Federal reports required of holding companies registered under the Holding Company Act of 1935. Usually such registered holding companies must file three separate annual reports with the Securities and Exchange Commission:

Form U5S, the Annual Supplement to the holding company's registration statement;

Form U-14-3, the annual financial and accounting report under the Uniform System of Accounts prescribed for holding companies;

Form 10-K or 1-MD, the annual report required under the Securities Exchange Act of 1934 or the Securities Act of 1933.

While each of these reports contains voluminous detail which might properly be cut down, progress could be made and a lot of duplication eliminated by establishing one form of annual report to the Securities and Exchange Commission, which should take care of the requirements of the Acts of 1933, 1934 and 1935. Specific suggestions were made for the development of such a single master form to replace the present three forms. In addition to eliminating some duplication, such a form would wipe out the minor differences between the forms on items covering substantially the same subject, differences which appear to serve no useful purpose but which add to the headaches in meeting the requirements.

Our recommendations may not have covered the entire field of possibilities; for we who were making the reports were necessarily limited to those phases about which we had direct knowledge. Further these studies were prepared from the industry's side of the picture and could not analyze all the possibilities for simplification, which may be found from study of the operations of the governmental agencies. The maximum practical possibilities must necessarily be developed by an agency like the Statistical Board, standing in the middle where it can coordinate the needs of business and industrial groups with the needs of the Federal agencies using the information reported.

IV

Thus you have the history of our efforts to simplify reporting to Federal agencies and something of the analyses that were prepared in connection therewith. It is still too early to determine the result of this movement for simplification; but perhaps a better idea can be had after the first of the year when the Statistical Board's recommendations have crystallized. However, the effort that is being made is encouraging. It is to be hoped that the Federal agencies will go the limit and obtain a complete and thorough consolidation of forms along the lines suggested.

Encouragement may also be found in the fact that some of the agencies are actively trying to improve and simplify their own regulations and report forms. Mr. William W. Werntz, Chief Accountant, Securities and Exchange Commission, in an address before the Controllers' Institute of America on September 27, 1938, made the following statement on this subject:

"At the present time there is a set of instructions included in nearly every basic form. . . . Many minor differences and some important ones have been discovered. Many filings have been examined to determine how particular provisions have worked out in practice, whether old instructions should be changed or deleted, and whether new instructions should be added. . . ."

He went on to discuss a proposed Regulation Z, which is to replace the variety of present instructions under the security acts with a single set applicable to all financial statements. He expressed the hope that this standardization of rules would minimize the difficulties.

This agency has also become interested in our analyses of Federal reports, through Mr. Copeland of the Central Statistical Board. Copies of our studies were sent to Mr. Burgess, of the Forms and Regulations Division, who requested them.

Another sign is that the Social Security Board now requires payroll returns quarterly instead of monthly, and *Forbes Magazine* reports that several states are making sincere efforts to simplify the reports called for in unemployment-insurance administration.

These are hopeful signs, but the problem is by no means solved. With the mushroom growth of Federal laws and regulations, the various Federal agencies have a major administrative problem in finding ways to carry out their responsibilities on a practical, workable basis. The economic system is not unlike the small boy who has partaken too generously of a Thanksgiving dinner. He has put a load on his system for which the digestive process is no small problem and which may very well be attended by some aches and pains. Similarly it will take time, patience and mutual understanding to digest the host of governmental requirements and to absorb them in the economic system.

We in industry can aid the process by

(*Continued on page* 550)

Federal and State Regulations, and Management Attitudes

By E. W. Morehouse

Chief, Rates and Research Department, Public Service Commission of Wisconsin and Chairman, N.A.R.U.C. Committee on Statistics and Accounts of Public Utility Companies

A paper presented before the Joint National Accounting Conference of the Edison Electric Institute and the American Gas Association, Chicago, Ill., Dec. 12-14, 1938

WHEN I was invited to give this talk I was told you wanted some general discussion of a general topic. On that basis I accepted. Accordingly my remarks will deal with generalities and especially with the most intangible of generalities, attitudes of mind. I thought I might be most helpful in the work of your convention if I tried in small measure to assume the role of interpreter of recent regulatory activities. What I say represents my personal impressions and opinions only, and not those of any agency with which I am connected.

In preparing for this talk I asked myself these three questions:

1. What are the more significant current trends in regulation?
2. What are or should be the relations between state and federal regulatory agencies?
3. What are or should be the attitudes of management toward these developments?

DR. MOREHOUSE

I. Trends in Regulation

Can you place and date the following quotation:

"I desire to say that the tendency of public opinion appears to be toward some interference by and on behalf of the public with corporations performing so-called public services. Such a tendency is a concomitant of our social progress. It is not merely a temporary surge, but is a part of a general movement. It cannot be withstood, but may be guided into proper channels. The general result of any such movement is for good; the damage which is done to individual rights is incidental, and is more often the result of needless opposition by the individual."

These opinions were expressed by Samuel Insull in 1898 at the 21st Convention of the NELA in Chicago, on the threshold of an expansion of state commission regulation.

In June, 1934, Owen D. Young, in a commencement address at the University of Nebraska, called attention to the lag of social, political and economic institutions behind progress in physical sciences. On the day the New Deal came into power, he is reported as saying, "it was called on to make at once . . . the delayed improvements of a generation, in banking, in law, and in innumerable parts of our social organization."

We live in a world of rapid changes. In the span of nearly two score years between these observations by leaders in the electric industry state regulation displacing direct control by legislatures and city councils, waxed and waned and has begun to recover. Beginning in 1905, state commissions with varying powers were established in every state except Massachusetts which started commission control of gas and electric companies in the 1880's and Delaware. But regulatory statutes and commissions did not and could not keep pace with the rapid changes in industry. The growth of interconnected systems, corporate consolidations, concentration of control in holding companies, and a boom in capitalization, outran the capacity of state commissions to deal with them adequately. State regulation was hampered by inadequate statutes, finances, and personnel, and checkmated by court rulings which made commission control cumbersome and impotent. The oncoming depression and exposures in a number of investigations of both the industry and state commissions capped the climax. State regulation fell to a new low in public esteem. This was the sort of "accrued obsolescence" in regulatory institutions to which Owen Young's general observation may be applied.

A movement to ovecome this obsolescence arose. Rehabilitation took many forms. In the field of state regulation, statutes were overhauled and strengthened, commission finances were enlarged by resort to assessments upon the utilities, some commissions were reorganized, emphasis was placed on aggressive fact-finding in lieu of passive judicialism, and state commissions set about refashioning accounting and other rules of the game. In some instances substitutes for commission regulation, such as regulation by contract or by competition through public ownership, were urged or put into effect. Most import among the renovations was the emergence of Federal regulation.

Even such a brief review as this leads to one inescapable conclusion. Public control generally, and utility regulation in particular, is in a period of transition characterized by accelerated changes in both *scope* and *character*. The Federal government entered the stage, not only to close gaps in state regulation but also to help states catch up with changes in utility industries which were escaping any form of public scrutiny. When you examine these new Federal and remodeled state statutes, you will find many new subjects covered—contracts between affiliated interests, depreciation, plant additions, budget approval.

The changing character of present-day regulation, though more subtle and

less apparent, is of deeper significance. Early state commissions were endowed only with powers of investigation and publicity; somehow informed public opinion was supposed to enforce proper behavior. Then order-issuing powers were granted, and commissions became more like policemen than publicity bureaus. Commissions, as policemen, were only supposed to protect the public from the results of abuses. Now, however, there is being super-imposed upon police regulations a type of control which can be described as policy-forming. Commissions are adding to their police functions the role of supervisors of industrial policies. The SEC is now engaged in administering a change in policy respecting the organization and control of electric and gas utilities. The FPC is studying what policies should be followed to further the interconnection and strengthening of power systems or to improve financial structures. Some state commissions have stimulated or required interconnections, have insisted upon reorganization of capital structures, have required complete revamping of property records, or have ordered changes in rateforms and simplification and standardization of rates structures. Such requirements were rare before the depression but are becoming less exceptional now.

Statements by some utility officials make abundantly clear that they regard these regulations as usurpations of management. Complaint is made that commissions in supervising policies of utilities tend to act as though they constituted a super-board of directors. From management's standpoint, it is true that the scope of management's discretion and prerogatives has been narrowed. But those who are irked by this tendency should examine its foundations, because whether you like it or not this expansion of regulation is here to stay until something better is devised.

As I see it, the addition of policy supervision and formulation to Commission duties is grounded chiefly upon two basic changes in economic institutions. One is the depression-induced collapse, or at least impairment, of public confidence in corporate finance and control—in other words a "depreciation" of public relations. Public distrust is not confined to utilities; it embraces banks, investment houses and brokers, and a host of others. With millions of unemployed and with millions of idle dollars, despite bountiful resources, is it any wonder that the common man questioned the competence and the policies of business leaders? In this state of insecurity and uncertainty, the average man has sought refuge in government as the only institution believed strong enough to cope with an entire industry or the industrial system.

And so we have a second basic change —the growing concern of government, especially in a democratic society, for the economic conditions and standards of living of its citizens. Join together government's greater responsibility for economic conditions and the public's lack of confidence in industrial leadership and you have a cornerstone for the newer forms of administrative control of industry generally as well as of utilities. Examine the Holding Company Act, the Federal Power Act and the Federal Communications Act as well as some of the revised state statutes and I believe you will find that these enactments entrust to administrative bodies the responsibility for shaping industrial policies and, in the words of Dean Landis, supervising "the economic integrity of industries and their normal development." This additional administrative task represents our democratic society's way of correcting for the obsolescence of regulation which, in general terms, Owen Young recognized.

The efficacy of these newer forms of regulation is beset with many perils, of which I call attention very briefly to four. I mention these potential pitfalls to a gathering such as this only because I believe that in the long run managements desiring to maintain or improve their public relations have a stake in the successful outcome of regulation.

(1) Effective regulation is hampered and made more expensive if management chooses to obstruct its processes—by seeking to play one jurisdiction off against another and trying to drive a wedge between them, by being unwilling to deal with both jurisdictions jointly, by withholding information, or by promising degrees of cooperation that are never performed.

(2) Many pronouncements or rulings of the courts lead to delays and added expense in investigation and litigation. Cost of reproduction estimates are a case in point. Moreover, some recent court decisions seem to be emphasizing procedural requirements. These are a subtle threat to administrative efficiency in that both state and federal agencies might feel obliged to fritter away their energies in complicated procedures when in reality commission functions require flexibility and informality. Too much preoccupation with procedure leads to sterility.

(3) Reasonable and constructive regulation is endangered if commissions can not get and hold competent personnel to administer their added responsibilities. This is a truism.

(4) Finally, if jurisdictional conflicts between state and Federal agencies should occur, in the long run both industry and the public suffer. This brings me to the subject of Federal-state relations in administering their added responsibilities and powers.

II. Federal-State Relations

This problem is two-sided. On the one hand, the growing revival of state activity in regulating utilities might stimulate an extreme states' rights attitude, resenting any contacts with, or intrusions of, Federal agencies. That attitude is just as damaging to effective regulation as a lordly attitude on the part of either Federal agencies or management.

On the other hand, Federal agencies have the responsibility of integrating their control with that by the states. It has been said of some Federal agencies that they have an itch for power. If the Federal commissions with which we are most directly concerned were to choose to reach out for broader and broader jurisdiction, seeking to attain national uniformity too rapidly or where it is unnecessary, it would only be human nature for state agencies to resent and resist such encroachment. In that event jurisdictional conflicts might arise. I am confident that unless checked such jurisdictional conflicts would only cause inconvenience and expense to the industry and in the long run to the consuming and investing public. This is recognized in various recent Federal acts which expressly exempt certain transactions from Federal control and which specifically provide for Federal-state cooperation and mutual assistance. I am confident that the present administrators of Federal commissions are aware of this potential problem and will not be fooled by those who seek to incite such friction. As far as my observations go, those who now hold influential positions on Federal commissions support the view that long distance regulation of predominantly local interests in the utility industry is not in the public interest. With that view I am in accord. As long as Federal and state agencies present a united front in joint support of this principle, regulatory effort will not be divided and weakened.

There is a field where Federal jurisdiction is and should be dominant, and likewise there is a field where state control is and should be dominant. Between these two, there is a borderline, or twilight zone of dual or overlapping jurisdiction. Especially, although not solely, in this twilight zone state and Federal agencies have a task challenging their statesmanship. That task is to work out policies and means of cooperation for joint regulation. In my opinion the development of adequate methods of joint regulation of utilities is one of the most important jobs of the next decade. Unless this problem can be satisfactorily solved, the consequences may be exclusive Federal control or public ownership.

The precise details of a policy of joint regulation must be left to the customary democratic process of trial and error. I am most concerned now in pointing out that there is an awareness of these problems and a disposition on the part of both Federal and state agencies to tackle them in a mutually helpful, rather than antagonistic, frame of mind.

However, there are certain fields of control in which the direction of joint efforts is already indicated. Happily, in matters of accounting a substantial start has been made. The uniform system of accounts for electric utilities recommended by the National Association of Railroad and Utilities Commissioners has been prescribed by the Federal Power Commission in substantially identical form. A majority of the states have adopted either one or the other. The Committee of which I have the honor to be chairman and on which the Federal Power Commission is represented by Mr. Smith who speaks to you tomorrow, has gone further. It has recommended lists of retirement units and an annual report form both of which also have been adopted by the Federal Power Commission without substantial change. We have also worked out a scheme for cooperative consultation in interpreting the uniform system of accounts, in which scheme representatives of your accounting committees are participating.

I hope I do not trespass on Mr. Smith's subject with these additional observations. Your accounting committees offered many helpful suggestions on all the matters referred to. We have appreciated this assistance. The degree of uniformity finally achieved could not have been accomplished without the hard work and willingness to cooperate of all members of our committee and other interested parties. You should know that from your own experiences in trying to reach agreements on accounting principles. Finally when I think of what the results might have been if state and Federal commissions had each gone their own way, the new system of accounts represents a tangible accomplishment of joint regulation which is likewise in the interest of the industry. It deserves a fair trial.

Numerous opportunities for joint Federal-state efforts appear also in the field of mergers and integration lest these matters, in the absence of joint consideration of some kind, be viewed too much from the standpoint of finance and investors and not enough from the standpoint of operating economies, rate levels, and the interests of consumers. Likewise in passing upon security issues, the determination of depreciation rates, and the fixing of rates for certain limited classes of service joint state and Federal efforts seem desirable. The important thing is that consultation should take place before official action by either agency, an obligation resting on both state and Federal agencies. I hold no brief for any particular method of joint consideration. The mechanics of joint action should be adapted to the situation. Conferences, joint hearings before joint boards, correspondence, and joint field investigations—all these and perhaps others might be utilized.

What are the major objectives of some of the state or Federal activities which I have been describing generally? Take for one example the activities of some commissions in standardizing and simplifying rates. Elimination of most of the great variety of rate forms is intended to avoid unreasonable discrimination and make it easier for customers to understand their bills with consequent improvement of public relations. Moreover, it tends to simplify customers' billing and accounting, and consumer analyses and thus tends to reduce costs.

There is a trend toward more ample provisions for depreciation and for more careful determination of depreciation rates. Improvement of the financial condition of the utility and safeguarding of investors' interests are among the contemplated ends. Although this work throws added responsibilities upon you as accountants in making depreciation studies, I am sure you do not contend that the general objectives are not desirable.

Finally, may I refer briefly to the revision of property records which some commissions are now requiring. I know that this is a vexatious problem for you; and I know also that I am not qualified to discuss the complex, technical details of this problem. But in your discussions of these details I hope you will bear in mind the chief ultimate objectives of revised property records and the circumstances which have called forth these requirements.

As I see it, the need for revised property records has a three-fold source: (1) Unrecorded and improperly priced retirements have been found in most investigations; (2) in other cases incomplete and inaccurate plant records have necessitated expensive field inventories to reconcile books of account and actual used and useful property; (3) the expense of obtaining or checking reproduction cost estimates has suggested a search for less costly and time-consuming valuation methods. If it is contended that a property record to fill the last-named need is more detailed than otherwise necessary, I would point out that as long as courts or utilities insist upon a valuation formula giving consideration to reproduction cost estimates, commission may well feel impelled to insist upon that kind of a record. If some way could be found to eliminate the need for unworkable valuation formulas, property records, though necessary, might not have to be so detailed.

The objectives in property record revisions, as I view them, are to enable verification of property and changes therein, including retirements, and the costs of plant, and to eliminate the need for periodic re-inventories. The usefulness of such records in original cost and depreciation studies seems obvious. With respect to the cost of this work, it seems to me well to bear in mind that these costs represent to a certain extent an accumulation of costs deferred in the past and that the recurring cost of such records will be much less than the initial cost of setting them up.

These are some of the aims on the frontiers of utility regulation as they are now unfolding. The question arises as to what attitude you, as accounting representatives of management, take toward these developments in regulation which I have so briefly mentioned.

III. Management Attitudes

Between the lines you may already have detected some of my answers to the third question with which I began.

(*Continued on page* 551)

Problems in Uniform Utility Accounting

By Charles W. Smith

Chief, Bureau of Accounts, Finance and Rates, Federal Power Commission, Washington, D. C.

A paper presented before the Joint National Accounting Conference of the Edison Electric Institute and the American Gas Association, Chicago, Ill., December 12-14, 1938

I NOTICE that I am scheduled to talk on Problems in Uniform Utility Accounting. Although, as you know only too well, that is a pretty broad subject, it is not quite broad enough to cover what I would like to say on this occasion. I am sure, however, you will indulge me if I stray somewhat off the beam.

For many years prior to 1935, there was an ever increasing volume of criticism by commission representatives and utility officers, too, of the system of accounts for electric utilities then generally prescribed. This criticism grew so loud and continuous that the Committee on Statistics and Accounts of Public Utility Companies of the National Association of Railroad and Utilities Commissioners decided in 1935 to do something about it. The efforts of that Committee, in collaboration with the accounting staff of the Federal Power Commission, culminated in a system of accounts—all too familiar to you by now—which was adopted by the Federal Power Commission in 1936 and by the National Association of Railroad and Utilities Commissioners later in the same year.

In drafting the new system of accounts, three fundamental principles were kept constantly in mind and, in fact, most of the debate centered around them. These principles were:

1. Accepted principles of accounting.
2. Information needed by management.
3. Information need by regulatory agencies.

In addition, the conferees, in spite of a few unkind statements to the contrary, never for a moment lost sight of the fact that accounting is, and must always be, only a means to an end.

Much has been written in recent months regarding "accepted principles of accounting." To the followers of Paciolo these words have an important

MR. SMITH

and almost a magical meaning. They are contained in practically every public accountant's certificate. But there appear to be two schools of thought as to what are the accepted principles of accounting. One school seems to hold that only those principles conforming to sound philosophy and logic of accounts, regardless of current practices, should be admitted to the category, whereas the other school seems to hold that good accounting, like good English, depends wholly upon usage. We, who drafted the system of accounts, took the view that accepted principles of accounting comprise existing practices, with a few exceptions where we felt abuses had crept in, plus those principles which, even though never practiced, are consonant with sound accounting philosophy. Any other theory, I say to you, would tend to perpetuate bad accounting practices or stem the tide of accounting progress. As thus defined, the accounting system, I am sure, conforms to the accepted principles of accounting and it now, of course, conforms to good usage as well.

The second fundamental principle was the needs of management. We were not unmindful of the fact that many utilities had so subdivided and so re-arranged the system then generally prescribed as to constitute almost a different system in substance. Nor were we unmindful of the fact that a committee of one of the associations here represented had in progress a draft of a new system of accounts for electric utilities. There was ample evidence that the needs of management were not being served properly by the accounting system then in vogue, and a new and better system was desired.

The third fundamental principle, and the one quite naturally foremost in our minds, related to the accounting information needed by regulatory agencies. Prior to 1936 there was a great dearth of vital information in reports of public utilities to the various commissions. The new accounting system was designed to remedy this condition and, speaking from personal experience, I know some of our aims in this direction are being achieved. I know of cases, for instance, where field investigations consuming public and private time and money would probably have been resorted to had not the new system of accounts and its related annual report form been in effect.

Mr. Bernard S. Rodey, Jr., on another occasion, has portrayed very graphically the rising accounting costs per customer compared to the decreasing costs of electricity production and has shown in some detail the causes of the ascending costs. Part of the increase, of course, is due to modern complexity of organization, for with all of our accounting aids it is difficult to produce mass, but intelligible, figures with the facility with which we produce mass goods. As industry becomes more complex and as management requires more accounting data, it is only natural that the requirements of public service commissions will likewise be on the ascending scale.

I have given this matter of accounting costs considerable thought, and while I do not see much prospect of immediate relief, sometimes I seem to see a faint ray of hope. This ray, which you may not see through the same lens, lies in the direction of a different theory of rate-making than that currently referred to as the "law of the land." Many of the refinements of our system of accounts are based upon what has aptly been termed "the dollar follow the property" theory. This theory is the direct outgrowth of much testimony, tending to impeach books of account in the rate-making process, to the effect that the dollars in the books do not reflect the cost of the actual properties in use. To obviate this condition, we now have rather elaborate work order requirements and there has been prescribed a detailed list of units of property, both of which, among many other things, are designed to remedy the condition complained of. Speaking for myself and myself alone, I would be willing to eliminate some of the present niceties in the system if an accounting rate base—such, for instance, as prudent investment—should become the established law in fixing rates. I declare with equal emphasis, however, that as long as reproduction cost is considered an element in determining the rate base, I have no recourse but to go to the necessary extreme to put an end to the impeaching of books of account as the best evidence of the cost of facilities devoted to public use! If necessary to make finer refinements to accomplish this purpose, then I am prepared to go that far. The impeaching of books of account kept in the everyday course of business by those who keep them, I hope will soon be an outmoded practice.

As concrete examples of the attempt to keep accounting costs down, may I cite the cooperation of the State commissions and the Federal Power Commission in drafting a uniform system of accounts for electric utilities, a list of retirement units, and a uniform annual report form. The system of accounts has been prescribed by some twenty-eight commissions and, it is estimated, is in effect in ninety per cent of the industry. It is hoped the same degree of uniformity can be achieved for natural gas companies on whose system of accounts we are now engaged.

It has been said, and justly so, that uniform systems of accounts make accounting too precise. Yet I believe that, generally speaking, no other course is feasible. Even with the rather elaborate system of accounts we now have, some important matters are left to the discretion of the utility. It is not required, for instance, that administrative overheads be capitalized. Suppose in a given case, they are not capitalized but five years later a new accounting officer takes the view his predecessor was wholly uninformed in the matter and then proceeds to restate the accounts. If this condition becomes prevalent, then you can expect much more precise rules as to the treatment of administrative costs than are now prescribed, for if consistency is a jewel in other fields, then in accounting it is indeed a virtue.

Accounting it appears is well headed into the port of "accepted principles consistently maintained." This is altogether as it should be; it is a most promising sign. It is the best direction our profession has taken in our generation.

I would not dare be so unorthodox as to ignore the subject of depreciation in a discourse of this kind. Depreciation accounting is not so much of a problem in other industries as it is in the public utility field. It is a genuine problem, however, in our work. Thus it is well-known that practically all public accountants' certificates attached to public utility balance sheets contain qualifications as to depreciation accounting.

Generally speaking, public utilities have not followed and are not following correct depreciation practices. Some public utilities are still practicing the retirement reserve theory although our uniform system of accounts definitely requires depreciation accounting. This condition cannot, in my opinion, long exist. A day of reckoning will certainly ensue.

It is gratifying to note on the other hand the depreciation studies which are under way by some large companies. Some utilities on their own initiative and others pursuant to definite commission orders, are rapidly approaching full-fledged depreciation accounting. These utilities will inevitably set standards by which others will be judged. What will happen five or ten years from now when utilities which have neglected the depreciation problem go to the money market? The answer undoubtedly will be higher cost of money. Accordingly, I urge those of you who are not already depreciation conscious to arouse yourselves, make the studies, and measure the adequacy, *vel non*, of your reserves. In short, become fully informed in this matter, for I believe if you become informed you will do something to improve the situation. It may be worth remembering, that to the extent you solve your own depreciation problem, it will be unnecessary for regulatory commissions to solve it for you. I note, with a great deal of pleasant interest, that you have given much attention to this subject during the last couple of days.

A word concerning the depreciation method. An acceptable depreciation method ought to relate directly to the consumption of service values. This, I believe, is a fundamental principle. The Federal Power Commission has established no one particular depreciation method, although it has broad powers under the Federal Power Act in regard to depreciation accounting. Nor have I, at least not yet, ever advocated one method to the exclusion of all others. Undoubtedly, however, the straight-line method commands the most respect. If you employ another method, you may likely be somewhat of an apologist for the method used, whereas no one need ever apologize for using the straight-line method. In other words, do not discard the straight-line method without examining well its basic logic and effect.

In regulatory circles today, there is very strong sentiment for making consistent the method of computing annual depreciation expense with the method of computing depreciation to be deducted in determining the rate base. Much support for this sentiment is gleaned from the decision of the United States Supreme Court in the Illinois Bell Telephone Company case. If it should ultimately develop that "observed depreciation" only is deductible from the gross rate base, then it is reasonable to expect the annual allowance to be measured so as to square with what is observed. This result, I submit, would not be a happy one, for it would destroy all progress toward bringing order out of chaos in this most important realm. I sincerely hope it will not have to be resorted to.

Many persons have asked me what is to be done to convert retirement reserves into adequate depreciation reserves under the new basis of accounting. This, of course, is a most difficult question, one which the Interstate Commerce Commission has been trying to answer for many years. For the electric

(*Continued on page* 550)

The 1938 Depreciation Problem

By C. E. Kohlhepp

Chairman, E.E.I. Depreciation Accounting Committee

A paper presented before the Joint National Accounting Conference of the Edison Electric Institute and the American Gas Association, Chicago, Ill., Dec. 12-14, 1938

A FEW of us, representing the AGA and EEI, are appearing here today in a symposium to present the current status of the ancient depreciation problem, to outline its scope, and to tell you what our plans are for the immediate future. We are *not* proposing to present a cure-all solution to the hydra-headed problem, which has operating expense, reserve, fund, rate base, valuation, and income tax complications. This is, we hope, a progress report.

Within the business life of many of us a better understanding of the meaning of the term "depreciation" has gradually developed from the early days when, for example, the United States Supreme Court said (Kansas - Pacific Railroad Case – 1878, 99 U.S.455):

"Depreciation account or expense not charged up . . . is not a proper charge to operating expense. . . . Only such expenditures as are actually made can with any propriety be claimed as a deduction from earnings."

Some electric railways never charged or credited anything except net salvage to property and plant or Depreciation or Depreciation Reserve, leading to Carl Thompson's bewhiskered story about the "horse car mules" still being in plant account, and a few leading utility executives even seriously advanced the theory that there was no such thing as depreciation because "appreciation always offsets it."

On the other hand, consider the grasp of the problem and almost prophetic vision of controversies now in the courts contained in the theory of Vitruvius, a Roman architect and engineer who practiced during the reign of Augustus. Vitruvius felt that "1/80th of the cost of a brick wall should be written off each year, unless the wall stands straight, in which case nothing is to be written off."

From these crude beginnings we have now reached, I believe, an accurate comprehension of what depreciation really is. The following is a good definition, taken from Prentice-Hall Federal Income Tax Service:

MR. KOHLHEPP

"(14,005) MEANING OF DEPRECIATION—Depreciation is the loss of value resulting from physical decay or from obsolescence or inadequacy. It will be seen that there are really *two forms of depreciation*, the one said to be *physical*, and the other *functional*.

"Physical depreciation is the result of deterioration due to work or to age. It results from use, decay and the action of the elements. Functional depreciation is the result of lack of adaptation to function. It results from changed conditions and surroundings which render the structure ill adapted to its work from growth of the business which renders it inadequate; from decline of the business which renders it too large; or from the development of the art which makes desirable the substitution of other methods, equipment and structures. The terms 'inadequacy' and 'obsolescence' are often used to denote in part what is here termed 'functional depreciation.' Physical depreciation is a constant factor; it begins as soon as the structure is exposed to the action of the elements or is put to use. Functional depreciation is fortuitous; it may come into play during the lifetime of a particular structure and it may not."

Reproduced herein is a chart from Kester's *Accounting Theory and Practice*, which assists, by visual demonstration, in understanding the many factors leading to the retirement of property.

It need not be argued, but only stated as a fact, that confusion and erroneous conclusions have resulted from the loose use of the word "depreciation" and failure to draw a distinction between its two distinct types. Physical depreciation represents a definite and progressive lessening of the service life of property. I believe it is as real a current expense, to be recognized on the books and paid for by present rate payers, as coal or labor. It can usually be forecast with reasonable accuracy if proper consideration be given to maintenance and maintenance accounting processes. On the other hand, functional depreciation represents unpredictable losses due to obsolescence, inadequacy, governmental requirements, introduction of more efficient machinery or methods, accidents, etc. It is an expense which should be recognized, provided for, and paid for by rate payers, only *when, as,* and *if* it occurs, as its existence appears imminent, or, as it is known to be operating to reduce the useful life of specific property. Generally it cannot be forecast with any accuracy whatever. The argument for straight-line depreciation is based largely on facts regarding physical depreciation, while the case for the Retirement Reserve theory rests substantially on such facts relating to functional causes of retirements.

Some of us, from time to time, have toyed with the idea that perhaps the solution to the problem is two reserves, one for physical depreciation, the other for functional.

As to the courts, it seems safe to say that depreciation problems will be presented to them more intelligently and that no one can accurately predict what the trend of decisions is likely to be. In the now famous Lindheimer-Illinois Bell Telephone case the United States Supreme Court seems to have at least given lip service to the "observation" method of determining "accrued depreciation"; agreed that there should be a disparity between such "observed" amount and the reserve; said "elaborate calculations which are at war with realities are of no avail." At the same time they could not approve too great a disparity between a straight-line reserve and observed de-

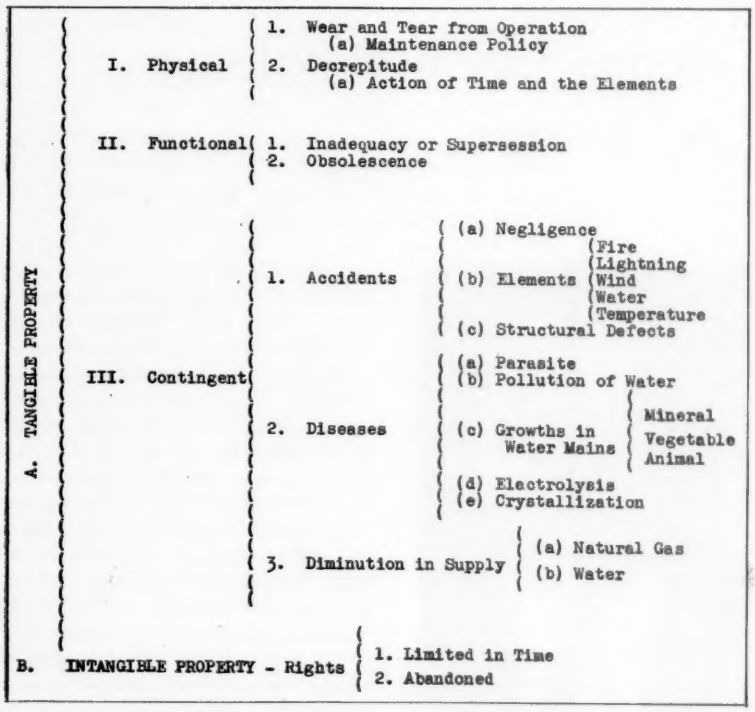


*Chart Showing Causes of Depreciation**

*Kester, Accounting Theory & Practice—P. 231.

preciation, at least they found a reserve so set up excessive, and left some doubt as to their views on straight-line depreciation.

In what is recognized as a learned discussion of the whole subject of accounting for depreciation, Mr. Justice Brandeis, in an opinion in *United Railways vs West* 280 *U. S.* 234, in which he dissented from the majority of the Court as to the basis upon which depreciation charges were to be made, i.e., present value or cost, specifically stated that the (280 U.S. at P. 262):

". . . . annual depreciation charge is not a measure of the actual consumption of plant during the year. No such measure has yet been invented. There is no regularity in the development of depreciation. It does not proceed in accordance with any mathematical law. There is nothing in business experience, or in the training of experts, which enables man to say to what extent service life will be impaired by the operations of a single year, or of a series of years less than the service life."

The Retirement Accounting process provided in the NARUC Classification of Accounts from 1922 and 1937 recognized these facts; recognized that flexibility is essential if such facts are to be recorded. It would be idle to argue that this flexibility was not abused in some cases. We must co-operate with regulatory representatives to remove the possibility of abuse and yet retain an opportunity to record facts.

I have referred briefly to some phases of past history, of the variant views and attitudes on the subject, to give a background to the discussion of our present problem.

Now where are we today? Clearly our task is one of relating practical accounting, financial and rate making problems, growing out of the past retirement reserve process, to the new depreciation accounting requirements and the confused and perhaps changing legal aspect of the situation. We are facing a determined effort by regulatory authorities to impose "straight-line" depreciation. The straight-line method has been defined as one in which the service value of plant is spread over its life, as nearly as practicable, in equal annual amounts. Many regulatory authorities apparently propose to use such straight-line amounts, currently and perhaps retroactively, as a measure of reduction in *value!*

It is our duty as utility accountants, as men whose main duty is to recognize a fact when they see one, but who also, if they are anything more than bookkeepers, grasp the significance of the effect of accounting processes on the financial well-being of their companies and on the rights of the rate payers, to be sure our managements grasp the full significance of this situation.

The new NARUC and FPC classifications define depreciation as "the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance."

Note carefully the language which says "loss in service *value.*" It's perfectly all right to define what depreciation is but to say that the amount put upon the books *is* the same animal raises serious questions. In other words, whether the annual appropriation and the reserve represents some Commission requirement, a corporation's estimate of the proper amount of physical and functional depreciation for a year or groups of years, or an attempt to spread the estimated total life in equal annual amounts for accounting and financial uniformity reasons, the amount so recorded is interpreted as the company's estimate of reduction in *value of its property.* It may be nothing of the kind. We say this, we believe, with a full appreciation of regulatory problems and equity to ratepayers.

To make the situation worse, there is evidence that in valuation matters, where the actual facts as determined by engineers should govern, some regulatory authorities would make retroactive computations on a "straight-line" depreciation basis, to determine what the reserve "should be" on this arbitrary basis. Such "reserve requirement" will be deducted for the purpose of determining what the rate base should be. Especially as applied to situations where the Retirement Reserve process was used in good faith, this might be called a lot of things, but you wouldn't call it justice. A prominent and influential member of a strong state commission is reported to have said, boldly and publicly, that he will be glad to allow liberal annual depreciation because the retroactive application of such current depreciation rates would produce a rate base so low that the over-all effect would be a reduction in rates.

Our problem and task stand out crystal clear. We must devise, or assist

(*Continued on page* 526)

Causes of Property Retirements

By H. C. Davidson
Consolidated Edison Co. of New York, Inc., New York, N. Y.

A paper presented before the Joint National Accounting Conference of the Edison Electric Institute and the American Gas Association, Chicago, Ill., Dec. 12-14, 1938

THE subject assigned to me in this group discussion of Depreciation is "Causes of Property Retirements." My remarks will be in the nature of a progress report of the Subcommittee organized last summer for the study of that subject. In this progress report, I hope to bring to your attention the objectives of the Committee activity and their pertinency to the general studies of Depreciation Accounting in which the industry is now engaged, to meet the new problems of the recently promulgated classifications of accounts.

It is also my hope that I may be able to stimulate your interest in this subject to the end that through your cooperation the industry may have more complete factual evidence of the true characteristics of property retirements and their relation to the economics of Depreciation Accounting. To me this understanding of the facts seems the first prerequisite to sound conclusions upon the subject, and equally essential whatever one's theories on this controversial subject.

In order to avoid discussing at cross purposes the significance of the causes of retirements, I wish to refer briefly to certain aspects of the background from which I approach the subject.

Situation of Utilities Not Comparable with Private Industry

The situation of the utilities is not comparable with that of private industry, either as to the economics or the consequences of Depreciation Accounting policies. A private company may deliberately anticipate its depreciation requirements. For example, the General Electric Company, as a private company, can write its plant down to $1.00 if it wishes to and its earnings are sufficient to permit it. But that does not mean that in the sale of, say, a turbo-generator, it will be limited in its selling price, by reason of that depreciation accounting, to the cost of the generator without any return on the property actually employed to manufacture it.

Instead, such writing down, as practiced by private companies, represents

MR. DAVIDSON

merely conservative financial policy, as a *protection* to the financial strength of the company rather than as a *measure* of the diminution in value of the property employed. It is a common practice of private companies to relate depreciation primarily to earnings by setting aside larger amounts in prosperous years and less in lean years.

So in the approach to this question we must recognize that the problem of Depreciation Accounting of the utilities is not analogous to that of private industry. There is an effect upon values, and consequently upon earning power, present and future, in the Depreciation Accounting practices of the utilities, for which there is no counterpart in the accounts of private industry. The utilities must therefore pattern their Depreciation Accounting more closely in accordance with the actual facts of depreciation than is necessary in the ordinary private business.

Measure of Unmatured Depreciation—The Difficult Problem

The really difficult problem in attempting to measure the progress or extent of depreciation in a going property, whether it be related to values or as a foundation of Depreciation Accounting, is to find a proper measure of the unmatured loss in existing property.

Matured depreciation, as represented by property actually retired, is factual. It is definite in its amount and must be provided for in full. After a unit of property has gone out of service, the cause of its retirement ceases to be of importance. The accounting requirements are the same whether its withdrawal was due to gradual wear and tear or an instantaneous change in condition, or whether physical or economic reasons were responsible for the termination of its use.

But that is not true of the unmatured depreciation. The extent of unmatured depreciation in the property of a going concern cannot be measured with any degree of accuracy. Too much depends upon factors that cannot be humanly predicted. Such conclusions as can be reached regarding it, beyond the immediate future, represent purely opinion or judgment, as to which there is no royal road to the answer.

To me, Depreciation Accounting, as prescribed in the recent classifications, differs fundamentally from amortization, with which it so often seems to be confused. Depreciation as defined, involves a measure of value, whereas amortization represents only a spreading over an adopted period.

In attempting to measure unmatured depreciation, therefore, we must recognize that it is not a mere spreading. Nor is it something that can be forecast in advance, to be charged off over some determinable period, as discount on bonds is spread over the life of the bonds or prepaid rent is spread over the term of the lease. Instead, it calls for a measure of value, or rather loss in value, under conditions which are dependent upon future happenings, both internal and external in character, for which there is no standard or accepted yardstick.

Characteristics of Retirement Losses

We must also recognize that the characteristics of the changes taking place, which will ultimately lead to the re-

tirement of property, will inevitably influence the progress and extent of accruing depreciation during the life of the property. If Depreciation Accounting is to follow generally the actual conditions in the property, and is not to rest upon a mere spreading over an arbitrary period, the factors affecting the extent of loss at any given time during the life of the property must be taken into consideration.

So it seems to me that the *characteristics of depreciation,* as evidenced by experience with property actually retired, afford a valuable guide in any estimate of the proper provision in Depreciation Accounting for the *unmatured* depreciation in the existing property. That, gentlemen, is the background of the Subcommittee activity, for the factual study of the causes of retirements.

Need of Factual Data on This Point

It is not an exaggeration, I believe, to say that the development of the maximum factual data is the first essential in the approach to this subject. Certainly the present available knowledge of the extent and character of depreciation losses, particularly obsolescence, in a going property, is very limited. We lack the foundation for the proper consideration of realities in the accounting treatment of such losses. The tendency seems to be toward too much emphasis on simplifying the administrative features of Depreciation Accounting, at the expense, perhaps, of wandering from the facts in the actual measurement of the losses taking place.

Nature of Data Sought by Committee

And now a word about the nature and extent of the study of causes of retirements, in which the Committee asks your cooperation and assistance. Realizing the time and effort necessary in any case to make a review of retirements and determine their causes, the data contemplated has been confined to the bare essentials.

The initial program, as tentatively adopted, provides in part for an analysis of retirement losses over a 10 year period, to ascertain, if possible, for the information of the industry, the losses which may be ascribed to

(1) physical causes, such as deterioration, wear and tear and action of the elements,

(2) functional causes, such as inadequacy and obsoleteness, and

(3) external causes, unrelated to the property itself, such as public improvements and destruction by flood, storm or accident.

I know from my own experience that even these broad basic divisions are not always easy to determine, and that many retirements are due to a combination of causes. There is usually one predominant cause, however, that stands out, although there may be a few cases where the withdrawals have to be assigned to more than one reason.

This minimum program does not attempt to exhaust the valuable data which might be compiled on this subject. If conditions permitted, much additional information relative to the relationship of property retirements to maintenance and to the extent of property involved, could be gathered to advantage to the industry. But that is subordinate to the basic data now sought and consideration of it has been deferred.

As a test of the practical aspects of the contemplated analysis, the accountants and engineers of our Companies have been at work in recent months upon the study of our retirements. We have completed the analysis of three years of the proposed ten year period. The composite result for the three years, which included charges to the Reserve of $37,000,000.00, shows that the causes of retirement losses were distributed as follows:

Physical Condition	13%
Inadequacy and Obsolescence	79%
Other Causes (public improvements and accidental destruction)	8%

The figures, as compiled, were classified by departments so that the details were accumulated automatically for each class of property each year. The individual years showed substantial variations according to the proportion of the total represented by the various classes of property withdrawn. Also, the results for gas property showed different characteristics in some regards from electric property.

These figures are of course merely fragmentary in comparison to comprehensive statistics for the industry. The results of such a study for the industry as a whole, or a substantial part of it, cannot help but give a clear insight into the facts of property retirements, and to provide factual data relevant to any well-founded conclusions on the subject.

Admittedly, in the present situation, the burden rests upon the industry either to accept the Depreciation Accounting theories prescribed or to suggest some sound workable substitute. On the other hand, it is the obvious obligation of both the authorities and the companies to work out some practical solution of the problem which will be consistent with the facts and be acceptable to both. Toward that end, I cannot stress too strongly the importance, at this time, of the most complete factual information regarding retirement losses.

It is on that ground that, on behalf of the Committee, I ask your cooperation in a study that will call for substantial research directed to your own experience. And I ask that you undertake this analysis in more than a superficial way, not merely as an accommodation to the Committee, but as a part of the development of comprehensive information for the benefit of the industry as the foundation of Depreciation Accounting practices that may be sound, and at the same time meet the requirements of the various interests involved.

Harry C. Abell

HARRY C. ABELL, prominently identified with the Electric Bond & Share group of public utilities from 1921 until his resignation in 1933, died in New Orleans, La., November 24, after a week's illness. He was 69 years of age.

Mr. Abell became a vice-president of the Electric Bond and Share Company when he joined the system in 1921 and he served as president of the National Power and Light Company from the time of its formation in 1925 until his retirement from active business five years ago. In addition to these executive offices, he relinquished his position as director of National Power and Light Company, vice-president and Director of Electric Power and Light Corporation, as director and chairman of the Memphis Power and Light Company and as vice-president and director of the New Orleans Public Service Company.

A native of Winnipeg, Man., and a graduate of the Armour Institute of Technology, Mr. Abell was connected with the Canadian Pacific Railway, the Belding Motor Company of Chicago, the Anchor Line and the International Navigation Company. Later he joined Emerson McMillin & Company, which supervised public utility companies, and later served with American Light and Traction Company, which was sponsored by the McMillin interests.

For a number of years Mr. Abell took an active interest in the activities of the National Electric Light Association, having served as treasurer, and also in the American Gas Association, of which he was a vice-president. He was also a member of the American Institute of Electrical Engineers, American Society of Mechanical Engineers and the Engineering Society of Canada.

Depreciation Principles

By H. L. Gruehn

Consolidated Edison Co. of New York, Inc., New York, N. Y.

A paper presented before the Joint National Accounting Conference of the Edison Electric Institute and the American Gas Association, Chicago, Ill., Dec. 12-14, 1938

IT is trite to say that the problem of Depreciation is a confusing one but it is nevertheless necessary to call attention to that confusion as a starting point for an examination of the principles which the utility accountant should follow in his particular phase of the Depreciation problem. The confusion is due, certainly in large part, to a failure to recognize the viewpoint, from which the problem is being discussed. The engineer's viewpoint, the investor's viewpoint, the regulator's viewpoint and the economist's viewpoint are of no means the same. I suspect that for accounting purposes some of the different viewpoints should not even be reconciled.

Let me illustrate that point: To the engineer, depreciation means, principally, the aspect of the physical and functional condition of the property he operates. An old piece of equipment operating at the same efficiency as a new piece of equipment is, broadly speaking, just as good to him as the new piece. His is the problem of matching operating and capital costs of present equipment as against prospective equipment. From his viewpoint the problem of depreciation concerns itself, essentially, *with impairment in the serviceableness* of his property, and in the *relative efficiency of his property in comparison with newer facilities,* and both viewed against a background of prevailing competitive and cost conditions.

From the viewpoint of the investor, the problem is that of maintaining the integrity of his capital investment. His is the problem of seeing to it that he reserves the amount of his investment over the profitably productive period of the enterprise in which he has invested. His is the problem of reserving out of earnings, *while* there *are* earnings, enough to return him his investment by the time of the economic death of his enterprise. In this connection, it is both interesting and instructive to study the financial history of successful and unsuccessful American enterprises, particularly those which have long history and have therefore surmounted many radical changes

MR. GRUEHN

in the country's and their own business conditions. You will find companies which started out in one line of business and without suffering capital impairment in the meantime are now entirely engaged in quite a different field. As a matter of financial policy, these customarily are the concerns which recouped the capital invested in the initial field of operations by the time that field became unprofitable. Their ability to make the transition to another field was due to the substantial recovery of their capital combined with their existence as a going enterprise ready for some new activity. They conquered the costs of obsolescence, both engineering and economic, as well as the physical consumption of their investment, primarily through their depreciation policy. A comparable financial policy for the utility investor is made more different by the regulated nature of utility earnings, but the essential problem remains the same, differing only in the degree of difficulty as to its execution.

The legal viewpoint of the depreciation problem, as applied to the utility business, is something else again, and it is primarily the viewpoint of the regulatory body. Here the main concern is with present value: with a fair return *on* the value of property and a return *of* the value of property. The existing physical and functional condition of the property, as it may be developed from observation and expert judgment, is a factor to be considered in determining the value of property; and the relationship between the needs for property replacements and the annual allowances therefor being made out of expenses, as was developed at length in the Lindheimer case, is another factor to be considered. Both of these considerations must be viewed against the general background of the rate making principle which seeks to fix rates at the cost of service, including a fair return *on* and a return *of* on the value of property, but which sets the value of the service as the upper limit upon rates.

While I need not dwell on depreciation as the economist sees it, it is interesting to observe that seriously reasoned efforts in this field have linked a relationship between the swings of our business cycles and possible mitigation thereof with an intelligent handling of the depreciation problem by industries—particularly as it relates to the impact of obsolescence losses on the business cycle and the desirable features of reserving from the additional earnings made possible by more efficient equipment enough to cancel those obsolescence losses in order to maintain the national capital intact.

In part, the latter objective is also in the minds of those who, like Dr. Heymann, are willing to *insure* physical property against physical depreciation.

These are some of the various viewpoints from which the single word "depreciation" is regarded. It is understandable, therefore, that sharp differences of opinion exist as to the problem and that different opinions may be both seriously and violently advocated.

I have said nothing about depreciation from the accountant's viewpoint, but it is likewise understandable that similar sharp differences of opinion should be held. Perhaps this is so because the accountant presumes to deal

with the collection and interpretation of business facts—and he serves management, the investor, the operator, and the regulatory interests. I am sure that you will recognize immediately some of these sharp differences even as between accountants. Thus, for the purposes of income taxation, the view seems to be that a regular fraction of the depreciable investment is a proper charge against income, and that the amount which should have been so set aside in past years can now be determined. You will also recognize a viewpoint of many industrial accountants that appropriations for depreciation should be different in years of high profits than in years of low profits. You will recognize, I am sure, the viewpoint held by the railroad accountant that no provision need be made for unrealized property losses until the property needs to be replaced. There are differences of opinion even within the utility industry.

I think some of these viewpoints are not reconcilable for the accountant, if by reconcilable is meant a set of accounting principles and actions which encompasses all these viewpoints. I have already voiced my doubt whether for accounting purposes these conflictng viewpoints *should* be reconciled.

Narrowed, then, to the problem of what the accountant shall do about depreciation, let us see what we do and what we do not know about the subject. With a helpful motive in mind, may I suggest that we emulate the scientist who first seeks a meeting of the minds concerning the meanings of his words and ideas. The discipline of ascertaining the significance of words will be helpful in this as in other tangled problems.

First of all, let us see what the word "depreciation" itself means. In its literal sense, depreciation means a fall in, or lessening of, *value*. For the present discussion it refers to the lessening in the value of property. It is elementary for me to point out that "value" of property is not the same as "cost" of property, and, therefore, in the customary sense neither is it synonymous with the investor's outlay for property. The distinction between "value" as contrasted with "cost" is very basic indeed. One need go no further in examining the difference between "cost" and "value" than to recognize that among other factors "value" of property is affected by, or changes with, the cost to reproduce, or the changes in the specific usefulness of facilities, or changes in price levels. "Cost" is but *one*, and *only* one, of the factors in the determination of "value."

Next, let us see what the accounting process consists of, as it applies to the problem of the cost and value of property. Accounting is a process of recording, of reckoning, of computation. Accounting *could* be a recording of changes in value in property, but as the mechanism is known today, it is customarily a recording of the *costs* of property. Whether accounting is conducted on the basis of "value" or the basis of "cost" of property, one point seems clear, namely, that the *basis* must be reasonably consistent to give the product a reliable meaning.

If the "value" concept is to be followed, then the rise and fall in the value of property from factors *other* than wear and tear, obsolescence, etc., should be recorded, as well as lessening in value from wear and tear or obsolescence alone. If, on the other hand, "cost" is prescribed as the standard for recording property, and the recording of the rise or fall in value is not considered proper, it seems to follow that the recording of depreciation in its "value" sense may be a contradiction.

Another aspect as to the process of accounting concerns the treatment of losses. I believe it correct to say that the accounting mechanism calls for a recording for losses in the sense of "realized losses" or "completed transactions," but that *before* their realization or completion only *provisions for* and in anticipation of completed loss transactions are to be made. Here again the tyranny of words becomes an instrument of clarification. A *provision* for and in anticipation of completed loss transactions are to be made. Here again the tyranny of words becomes an instrument of clarification. A *provision* in anticipation of a completed loss may prove to be inadequate, sufficient, or excessive; in any case, the accounting recording does not purport to represent the *realized* loss, but only attempts to guess at what the future may prove to have been the correct or incorrect *present* pro-rata estimate of that loss.

Next, let us look for a moment at certain characteristics of the losses to property caused by wear and tear, obsolescence, inadequacy, action of the elements, decay, action of public authorities and similar factors. In the first place, they do not seem to proceed evenly and regularly and proportionately with the passage of time. Some do proceed so more than others, but the experience in the gas and electric field so far certainly suggests a highly uneven incidence. Obsolescence seems to have been a major factor and the incidence of this factor has often been of sudden and even unpredictable occurrence. It has even occurred that one of the factors affecting the "value" of property, viz., price levels, has produced realized prices for *salvage* of an item retired from service which has exceeded the *cost* of the facility at the time of its installation.

As an operating problem for the accountant to cope with in his recordings, it surely seems safe to say, too, that he cannot usually determine (other than for very short-lived articles) what service life may be expected from a facility until at or near the end of that period. And, if price levels should change drastically, as they may in the next decade or as they did during the early period, the distortion to what may be recouped through salvage may even prevent the accountant from estimating in advance, within reasonable margins of error, as to how much ultimate loss in the cost of property he should provide for over the service life of the property.

What principles may thus be drawn for guidance in the accountant's problem of recording the consumption of the cost of a utility's property in the process of rendering service?

The known data concerning the incidence and rapidity of property consumption in gas and electric companies permit the mention of only a few principles.

First, "depreciation," for utility accounting purposes means the *losses* incurred during the period of use of all utility property devoted to the utility operations, as measured by the *cost* of the property minus the net salvage obtained at the end of the property's useful life. "Depreciation accounting" means a systematic method of charging Utility Operating Income for the anticipated property losses as above determined, as nearly as may be estimated over the useful life of the utility property.

Second, as long as the basis of the prescribed accounting is *cost*, and not *value*, the accountant can record against the costs of rendering service only losses actually become realized plus *interim provisions* for an *estimated* loss to become *realized* or *completed* at some indefinite time in the future. I emphasize the word *"provision,"* as distinguishing the recording from an actually determined loss. I emphasize the word *"estimated"* because the accuracy of the amount recorded can-

(*Continued on page* 551)

Present Views of Authority on Depreciation

By H. C. Hasbrouck

Chairman, A.G.A. Depreciation Accounting Committee

A paper presented before the Joint National Accounting Conference of the Edison Electric Institute and the American Gas Association, Chicago, Ill., Dec. 12-14, 1938

IN the November issue of the Journal of Land and Public Utility Economics appears the second part of an article by C. Emery Troxel on Obsolescence of Public Utility Property. This part is an analysis of court decisions and commission opinions on this subject. Its concluding sentence is: "In general, there is a notable absence of unanimity of opinion and understanding among commissions and courts on treatment of obsolete utility property."

While Professor Troxel's article, keeping strictly within its expressed limitation, dealt solely with obsolescence, I think we accountants will be willing to agree that a "notable absence of unanimity of opinion and understanding" characterizes equally well the entire field of depreciation.

The title of my subject on the program is purposely stated in very broad terms. Probably some of you who have read it want to know what is meant by "authority." Well, whatever it means to any of you, I am sure that you will find a "notable absence of unanimity," unless you are not going to recognize any authority except your own immediate boss. Even then a little cross-examination might develop some inconsistencies in his opinions.

A convenient classification of those who speak with some authority on the subject of depreciation is to divide them into four categories:

Engineers
Accountants
Regulatory Commissions
Courts

Now, I do not propose to cite in this short discussion recent opinions by representatives of each of these four classes, though an intensely interesting presentation might be made by doing just that. What I shall do, however, is to summarize for you briefly what I conceive from numerous discussions which I have read, heard, or participated in to be the most significant attitudes today of persons in each of the four types of authority just named.

The engineer thinks of and attempts

MR. HASBROUCK

to deal with depreciation as a fact. He recognizes its root meaning of lost value and tries to relate that lost value to physical and economic causes and to measure by the methods of his profession their effect. Engineers differ widely in the methods of measurement which they apply. Nevertheless, they agree with few or no exceptions that the "lost" value of any given property or unit of property at any given time represents the excess of the value of a new and efficient unit and that such excess can be measured with a fair approach to accuracy. How much of this loss has been suffered by a certain property in a given period of time is a question which engineers can readily answer if supplied with all the data necessary to measure the depreciation at the beginning and end of such period. In fact, since the answer to such a question requires simply the subtraction of one arithmetical figure from another, even an accountant can do the trick. But the engineer is less certain if asked how much of the depreciation occurred during any particular subdivision of the period of time between his two sets of values. Sometimes he answers that it is fair enough to *assume* that the loss proceeds in proportion to the lapse of time, that is, in a "straight line." More often he says that any such assumption can be made only to a limited degree and for certain types of property; that as to the other types there is no answer to the question except as a "matter of judgment." The greater the engineer's practical experience, the more likely he is to give the second answer.

The accountant is concerned with recording in his books of account the effect of depreciation in dollars and cents. He generally recognizes, however, subconsciously or otherwise, that either depreciation or appreciation is an indefinite and dangerous idea for an accountant to deal with unless the depreciation or appreciation is realized in a transaction which reflects the judgment of the market place rather than the opinion of an individual. Nevertheless, he has a wholesome respect for the practical financial difficulties that arise when the accountant waits for the realization of depreciation, and sometimes of appreciation, before he makes an entry in his books of account. The accountant doesn't like sudden fluctuations in his balance sheet and income statements. They make him lose a lot of sleep trying to explain them. Moreover, the accountant likes to have his books reflect factual transactions so far as possible, rather than opinions and estimates. So he is inclined to forget the root meaning of depreciation as loss in value, and considers it his job to treat depreciation as a special factor in cost accounting. He does not expect his charges for depreciation on the books to be a measure of value actually lost during the accounting period, but to spread or amortize the *cost* of long lived property so that no accounting period will bear so heavy a portion of it that he will have to make long explanations to the management or the stockholders of why net income took that sharp and sudden drop. To the accountant, therefore, a charge for depreciation is primarily a device for equalizing over a period of years charges that would have to be recorded at irregular and unpredictable intervals and in irregular and widely varying

amounts if costs of long lived property were charged off only if, as, and when retirements of such property occur.

The regulatory commissions—they are authority and don't we know it! Their attitude, perforce, like that of the engineer and the accountant, takes its tinge from their function and their background. In the main, the men who serve on these administrative bodies desire to keep their findings within the limitations of sound economics and justice to both investors and customers. (Of course, the ethical concept of justice and the scientific concept of sound economics are, in the last analysis, one and the same.) Relatively few members of regulatory commissions, however, have had much training in economic theory or much experience in practical business management. Moreover, under our system of government, these regulatory commissions are essentially, no matter how they are chosen, political bodies. This means that they cannot be guided wholly by considerations of the long-run economic effect of their decisions but must give weight to what the voters at the next election will think about those decisions. So we must accept as philosophically as we can the fact that in dealing with depreciation regulatory commissions are disposed to favor concepts which give them an at least superficially logical basis for transferring income from the pockets of investors, who have relatively few votes, to the pockets of customers, who have many. This does not mean, however, that sound economic concepts of depreciation and depreciation accounting will not ultimately prevail if clearly and fairly urged in the dealings of the electric and gas industries with regulatory authority.

Among authorities on depreciation the courts, of course, will have the last word. Up to now, the last word has not been said. The courts have displayed what from one point of view might be described as true judicial caution in dealing with the vexed subject of depreciation in its effect on public utility regulation. From a slightly different angle the attitude of the courts may seem like a somewhat confused groping for a complete and logical conception of the problem. In my judgment, the principal reason for this caution or confusion, whichever you want to call it, is that both the judges who hear arguments and the advocates who present them as lawyers are notoriously poor economists and worse accountants.

Under the supervision of the Accounting Committee of the Edison Electric Institute there is in process of compilation a digest of important court and commission cases dealing with depreciation. Of this work I shall have more to say a little later. A memorandum which in the course of preparing this discussion I was privileged to receive from a member of the staff engaged in that undertaking contains some statements reflecting the judgment of the writer after his study of all recent leading court decisions. He says: ". . . there has perhaps been no time when the law on the subject was as uncertain and in flux as it is at present. . . . In the light of these conflicting decisions it seems unwise to lay down any hard and fast rules. . . ."

The writer just quoted makes an interesting point in saying that one reason for the perplexing conflicts in court decisions is that what the courts have said on depreciation is often negative rather than positive. They tell us what cannot be done rather than what should be done.

In all the leading court decisions, however, I find that the emphasis is on depreciation charges and depreciation reserves as a measure of lost value and not on the accountants' conception of them as a device for equalizing costs. It may be that this view of depreciation accounting will become so firmly embodied in the law that the accountants will have to turn the whole problem over to the engineers and content themselves with merely entering on their books whatever the engineers tell them should be the lost value of property at a given instant or over a given period of time. However, I do not believe that the battle for the accountants' concept is yet lost. That concept is recognized in principle in the newer uniform systems of accounts put out by the Federal regulatory bodies and recommended by the National Association of Railroad and Utilities Commissioners, since depreciation charges therein purport to represent "lost service value," but "service value" is defined only in terms of "original cost." It is my confident belief that the reasonableness of the accountants' position can yet be demonstrated so clearly that the highest courts will recognize it and our law will be shaped accordingly.

One important reason for the present confusion in both commission and court decisions is the failure to distinguish between depreciation as a fact to be established like any other fact, by competent evidence; and a method of accounting for depreciation which will recognize the irregularity rather than the steadily progressive character of its incidence, at least upon gas and electric physical property, and attempt to remedy this irregularity by a more or less artificial equalization of charges. The confusion could, I feel, be minimized if not entirely avoided if all concerned would keep in mind the essential truth in these two sentences:

> If charges for depreciation are conceived as the closest possible approximation to actual loss in value suffered during a given accounting period, they cannot possibly follow a "straight line."
>
> If such charges are conceived as an accounting convention to equalize over a series of accounting periods the incidence of losses when, as, and if incurred, such charges may very properly be computed as a "straight line," that is, as directly proportional to the passage of time, but they cannot possibly represent actual losses during the period for which the charge is made.

At this point I wish to return for a moment to the analysis and digest of leading depreciation cases upon which the Edison Electric Institute is engaged. This work, I feel sure, is going to be a valuable source reference. It is a project in which Mr. B. S. Rodey, as Chairman of the Edison Electric Institute's Accounting Committee, is deeply interested, and it is being carried on to a considerable extent under his personal supervision. Its unique feature is that it attempts not merely to digest *opinions* of courts and commissions but to analyze the entire record of the case, the evidence, exhibits, and briefs, in order to select salient points in testimony or arguments which throw light on the reasons for the decision. Consideration of such digests should be very helpful to witnesses, lawyers, or executives who are called upon to make their own case, in showing what sort of evidence and argument has been effective and, even more important, what sort has not. Past performance in public utility litigation where depreciation was an issue is particularly fruitful in showing what not to do.

In the memorandum already referred to which comments on the Institute's digest of cases in the light of the analysis thus made, the writer specifies some of the principal weaknesses in the presentation of facts and arguments concerned with depreciation or the accounting therefor, and illustrates them by citation from various case records. Time will not permit a discussion of these at length, but they bring out the importance of avoiding technical language in giving

testimony and of refraining from statements which, however natural they may seem to the accountant or engineer witness who uses them, will appear obviously absurd to a court or a commission. As a positive recommendation, the memorandum stresses the importance of any attempt by regulatory authority to apply new standards of depreciation accounting retroactively, that is, so as to penalize a utility management which has in good faith, and frequently with the complete approval of former members of the same regulatory commission, kept its accounts on a theory differing from that now adopted by the commission. The writer wisely says that courts are always deeply concerned with the potentialities for injustice in retroactive legislation and will give great weight to a well sustained contention than an administrative accounting code having the force of law is imposed retroactively and unfairly.

In order to make the digest of cases of maximum usefulness, Mr. Rodey hopes that members of both the Institute and the Association will endeavor to make available to the Institute's staff the complete record of their own cases involving depreciation.

It is clear, I believe, to a majority of accountants and engineers, whether or not they adopt the "straight line" theory of accounting for depreciation, that actual loss in value of gas and electric property, except to a limited degree and for certain classes of such property, does not actually occur or "accrue" in any close proportion to the passage of time, that is, in a "straight line." The reason for this is that relatively few kinds of physical property in the electric and gas utility industries are retired or replaced because of the kind of physical deterioration which is to some degree a function of time, but because they become obsolete or inadequate.

At the beginning of this discussion I quoted a sentence from the second part of an article by C. Emery Troxel published in the November issue of the Journal of Land and Public Utility Economics on Obsolescence of Public Utility Property. The first part of that article, in the August number of the Journal, is recommended for your careful study. Professor Troxel has made an economist's clear, cold, and searching analysis of obsolescence as it affects public utility property, and appears to have reached the conclusion which most utility executives, accountants, and engineers reached long ago, that both the amount of lost value attributable to obsolescence (and to a somewhat less degree to inadequacy) and the period to which such lost value is chargeable are unpredictable. He says in the first part of his article:

"First, it should be noted that equal annual depreciation quantity or percentage allowances, admitting the convenience of uniform figures, do not assure measurement of obsolescence. This applies equally well to straight-line, sinking-fund, or other methods. Only by coincidence will a percentage depreciation rate or quantity of depreciation expense fixed in the present apply to future declines in asset values, unless the depreciation allowance is frequently readjusted to allow for functional deterioration of investment or unless obsolescence and companion sources of depreciation may be quite accurately predicted. It probably is easier, moreover, to predict inadequacy resulting from population or industrial changes than obsolescence resulting from new inventions which may not yet be conceived in the mind of the inventor.

"For any obsolescence prediction there may be a wide margin of error. Second, it is doubtful whether 'life tables' of property can accurately measure future changes in functional depreciation no matter what approximations of service-life are made by the turnover, mortality, forecast, or similar methods."

Mr. Rodey has recently had occasion to review a forthcoming book by Hans Heymann, Ph.D., to be published shortly by Harper & Brothers, on Property Life Insurance. In his review he refers to the fact that property life insurance as a specialized function of commercial insurance companies is a very new idea in this country, and states that only in New York and Illinois is such insurance authorized by law. In New York, the Property Life Insurance Company of America has recently been incorporated and, according to Mr. Leonard M. Gardner, Counsel for the New York State Insurance Department, will insure any income-producing property. But don't be too hopeful that here at last is the answer to all our troubles about depreciation. The catch is in the refusal of property life insurance companies to consider that depreciation due to obsolescence is susceptible of actuarial determination. Dr. Heymann's book says: "Property life insurance must eschew any insurance against obsolescence for the simple reason that obsolescence is an unpredictable hazard."

Another interesting opinion on the effect of obsolescence as a factor affecting the depreciation of property is contained in an editorial in The Accountant (England) for September 18, 1937, reported in the September, 1938, issue of The Accountants Digest. A paragraph from the editorial is quoted below.

"Thirdly, there is the problem of obsolescence. This problem is rightly regarded as difficult, but it is very important to observe that the difficulty arises only from the computation of the arithmetical amounts involved. To treat depreciation and obsolescense as one problem, or even as kindred problems, seems to us to court accounting error. Depreciation is a direct and measurable charge against profits, capable of being deducted before net profit is ascertained; obsolescene, on the other hand, is a sacrifice voluntarily or involuntarily incurred in an effort to maximize profits in the future. The consequence of this distinction is that provision for the possibility of obsolescence ought to be made by withholding from distribution profits which have already been measured after the deduction of depreciation. Such reserves are a precautionary measure of financial prudence unconnected with the measurement of profits in the present; nor do they operate in any true accounting sense to reduce the current going-concern value of the assets in active employment."

This is a typically English point of view, and one that in its entirety is not likely to appeal to public utility accountants in this country. Nevertheless, it shows that accounting thought across the water also realizes the unpredictable and incalculable nature of the obsolescence factor.

The point I wish to emphasize, of course, in the foregoing references to Professor Troxel's article, the Property Life Insurance Company, and the English Accountant editorial, is that all three, from widely varying viewpoints, perceive the essential impossibility of measuring the effect of obsolescence and inadequacy in advance of their realization, because they do not occur with any degree of regularity, that is to say, in any direct relation to the passage of time, and certainly not in a "straight line."

The fact that value is not lost regularly and progressively in a "straight line" or in any approximation thereto is not, however, in itself an insuperable objection to accounting for depreciation as though it were. "Straight line" depreciation accounting, properly understood and applied, that is, kept free from any implication that it truly records lost value, has many advantages even for public utilities. Personally, I feel that the mathematical basis for determining adequate depreciation charges and depreciation reserves has been rather overemphasized, for the reason, which I hope the preceding discussion and quotations from various authorities have by this time made plain, that since the causes of lost value in public utility property are

so largely incalculable and unpredictable, actuarial forecasts should be minimized and informed judgment should be given great weight in determining what are and what are not reasonable approximations. Nevertheless, I have no serious objection to the statement of depreciation charges in "straight line" terms nor to the corollary that if a reserve so determined has been built up out of earnings while investors have had from the same earnings their "fair return" and if the amount of such reserve has been reinvested in plant and property then the amount of the reserve should be deducted from the cost of the property to find the cost (not necessarily value) of property includible in the rate base.

No discussion of the present views of authority on depreciation would, of course, be complete without reference to the report entitled "Depreciation Principles and Methods" of the Special Committee on Depreciation of the National Association of Railroad and Utilities Commissioners, submitted to that Association at its Annual Convention in New Orleans last month. This is one of the most able and interesting presentations of the subject with special reference to public utility regulation that has yet been published. It contains, most of you, I am sure, will agree, vital errors in some of its fundamental assumptions, but most of the reasoning from its premises is clear and convincing. As presumably many of you have heard, the report was received without action either of approval or disapproval by the Convention, and the Committee was continued to pursue its studies for at least another year. If you have not done so, by all means obtain a copy of the report and study it carefully. It is well worth it.

In conclusion, I wish to repeat that the last word on the theory of depreciation accounting has not yet been said by any authority. I believe, however, that during the next twelve months the accountants of the electric and gas industries will have a greater opportunity than they have ever had before to make a constructive contribution to the problem of depreciation accounting, a problem which is so vital that the wrong answer might completely wreck the financial structure of the electric and gas industries.

The 1938 Depreciation Problem

(*Continued from page* 518)

in devising, processes of accounting for depreciation which will be sound factually and financially, and at the same time seek to make such accounting so clear and understandable that it can not be misinterpreted or misused. As I indicated at the start, we do not pretend to have the complete answer; at least we know we have a sizable task of convincing Regulatory Authorities that the present classification and proposed application of it are erroneous.

No summation of the present situation would be complete without reference to the clear picture of what is in the minds of many regulatory technicians and commissioners contained in the "Report of Special Committee on Depreciation" submitted to the NARUC at its New Orleans convention just last month. If you have not read it yet, do so without delay!

Now, I do not propose to say any more about what our depreciation accruals are or should be, or their relation or lack of relation to value. Mr. Gruehn will do that. Mr. Davidson will tell about the work his subcommittee is doing, as well as to explain its vital importance. Mr. Hasbrouck will sum up the situation and add those keen and illuminating observations as only he can. In addition, outstanding "experts" will discuss the subject and no doubt not agree entirely with everything that has been said.

We think we see the job from all angles, that we recognize the problems which face utility companies, all the way from those with comparatively large depreciation reserves to the other extreme of companies with small reserves resulting from good faith use of the retirement accounting process. We shall welcome the viewpoint of, suggestions and help from, any interest, any company, any source not represented on the committees.

We hope, and there are indications that we may expect, to have an opportunity to discuss all phases of the problem with a committee representing the NARUC during the coming year.

In addition to the work on principles which Mr. Gruehn will describe and the factual studies being undertaken by Mr. Davidson's subcommittee, the Committee has sponsored the preparation of a bibliography on Depreciation and a study of important court cases involving depreciation problems, all of which we hope to make available to the industry in a comprehensive report as soon as practicable.

It would be premature to be too specific or too optimistic but the joint committees propose to continue the program of defining correct principles and assemble supporting facts, in the hope that we can submit something at once sound from an accounting and financial standpoint and just and fair to past, present, and future rate payers and investors.

Specialized Meetings

(*Continued from page* 508)

guests, went about their work, that they felt the importance of their responsibilities. As might be expected, the divergent opinions and various complexities of their task were ably presented. We sensed, however, a tendency toward greater tolerance and sympathetic understanding of the varying viewpoints, which, if continued, will inevitably be productive of real results. The complete text of the various papers which were presented at the general session are printed elsewhere in this issue of the BULLETIN. Needless to say these papers were discussed at length by the committee during its sessions. Congratulations are due Messrs. Kohlhepp, Hasbrouck, Davidson, Gruehn and Scharff for their constructive leadership in this work.

Purchasing, Stores and Transportation

Last, but not least, for mention as to constructive work and interest is the committee led by E. S. Brock, K. C. Campbell and others, which held a partially closed session covering inventory turnover and economies, transportation accounting, use and misuse of blanket purchase orders, salvage operations, stores expense, clearing rates, unit package issues and absorption of minor materials through clearing accounts.

In conclusion this reporter desires to express a sense of inadequacy in attempting to cover all the various meetings. Even with experienced help there was too much going on to give even an approximate concept of the enthusiastic activity participated in by all the delegates. Frankly we have never seen anything quite like it before in the history of association accounting work. Without question this conference will go down in Association history as a landmark of achievement, and should do much toward the needed revitalizing of interest in national accounting activities.

—B. S. R., Jr.

Some Engineering Factors Affecting Obsolescence

By D. M. Jones
General Electric Company, Schenectady, N. Y.

A paper presented before the Joint National Accounting Conference of the Edison Electric Institute and the American Gas Association, Chicago, Ill., December 12-14, 1938

IN rising to speak on obsolescence to this gathering of experts in accountancy, who, not only have long since staked all claims showing any reasonable trace of this subject but also can and do brazenly cavort throughout the broad expanse of this domain with confidence and manifest delight, I, an engineer, am embarrassed. Right now I can't but feel that if I had had any sense I wouldn't be here.

The only justification for the attempt lies in the possibility that being an engineer and, therefore, fundamentally a stranger in this territory, I may be impressed by some things normally passed over by the informed, or view certain well recognized factors from a different angle, and thus add a modicum of new interest to your present broad understanding of this subject.

Having thus based my claim to consideration on a difference in viewpoint, it may be permissible to push this distinction to the point of some over-emphasis in an effort to extract what profit we can from this analysis.

In this spirit of your tradition an enterprise becomes a thing of beauty when reduced to an ordered outline of crystal clarity in the two base colors of value and time. The meticulous line accuracy of delineation in the financial statement is breath to your nostrils and the very foundation of assurance and faith on the part of management. In the pitiless and blinding glare of such terrifying precision the engineer, with his guess-stick as the symbol of his creed, stands as stunned and dazed as an owl in the daylight. He, however, can perceive the power and the majesty of your approach as well as sense its absolute necessity as a joint record and control-mechanism for industry. He has sufficient vision to see that adequate answers to 'How much is due,' and 'when is it due,' are as necessary to any enterprise as hoops to a barrel and he is most thankful to have those hoops correct and adequate on the barrel of the activity from which he draws his economic sustenance, as a major assurance of the continuity of his material well being.

To the Engineer by way of contrast the appeal and the romance of the Electrical Industry lie primarily in the physical functioning of the organism. The rhythmic play and counter play of cosmic forces bound together by the warp of cosmic law to produce the fabric of orderly and controlled production, distribution, and utilization, of electrical energy, is the spectacle that grips his imagination. (We are a wee bit daft you see, as probably you have long suspected.)

Impinged on these divergent backgrounds, even obsolescence, which is broadly accepted as the change in value with time of the physical content of a business, takes a different aspect.

Against the sharply outlined back drop of accountancy, obsolescence tends to appear as an insidious canker, born directly and inevitably of time, which persistently gnaws at the fundamental structure of physical things, as old age relentlessly stalks the living organism. It is time's curse on the material world. An evidence, when viewed through jaundiced eyes, of a sinister force which appears to be accomplishing, with diabolical perseverance, the slow but steady running-down of our whole universe.

To be forced by the pressure of necessity to assign to this renegade, full family status, and to carry on without evident irritation as has been done by you knights of the double ruled line, confirms in our eyes the strength of character which we long have imputed, to any one who can be associated with figures for a lifetime, and keep them so docile and subdued that credits always equal debits without recourse to experience factors or approximations, at least as far as the eye can see.

If, however, the requirement in our industry were simply that of maintaining the status quo of each element of the electric system as of the date of its appearance as a part of the industry structure, there would be little obsolescence for us to wrestle with on any basis. The transformer, the switchgear, the motor, the steam and hydro generator, the transmission and distribution line could be kept in an operating condition reasonably comparable to its initial status, beyond any time period of interest to you or to me. By intelligent periodic maintenance, the life expectancy of the fundamental structure of these devices up to the point where they would collapse, like the famous "one-hoss shay," of complete, general debility, would outspan normal business time-concepts and approach that of historic epochs for, in general, by periodic replacement of wearing parts and insulations on a maintenance basis, these devices rightly handled would become enduring things.

Obsolescence, however, when set over against the concept, particularly appealing to the Engineer, that an enterprise is essentially an organism which like the true biologic counterpart lives through growth and development and dies when these depart, loses its sinister aspect and becomes a good Genie, for if enterprises like living organisms obey the dynamic law and stay alive only by change and growth, and the static state thus becomes the synonym for death, then obsolescence is no longer an insidious canker, but the test and measure of life, itself.

In defending these statements against the tempting indictment of being nothing but vague generalizations, it may be permissible to become more specific.

The short life which, in distinction to the foregoing, actual experience indicates for major electrical equipment, is not a span of years terminated by old age, but a period of usefulness brought to a close either by (A) the rising competition of better devices, or (B) by the

early passing of the condition for which the device was initially acquired.

Definite examples of both these types of obsolescence may further clarify and emphasize these concepts to advantage. In proceeding to this end let us consider the examples in the same sequence we have just accorded the two types of obsolescence to which they are related.

(A) Obsolescence by virtue of the competition of new things plainly can arise either (a) through improvement in the design of existing types of equipment, or (b) in the developmental rise of totally new procedures with the necessary attendant devices.

(a) In proceeding therefore with examples of obsolescence through improvement in design of existing types of equipment, let us begin with the situation where the improvement is in efficiency.

(1) The advance in efficiency of hydraulic turbines, both by refinements in the standard reaction and impulse designs, and through the appearance of the propeller type supplemented by blade angle control features, has made it possible in some instances to invest a sum of money in replacing equipment and thereby considerably increase the amount of the Company's salable product, in terms of electrical energy. Whenever the income from the sale of such a possible increase in output would more than pay the full carrying charges on this new investment a net increase in earnings would result from the substitution, and obsolescence itself would then be making a regular contribution to the Company dividends.

The steam generating plant of the normal Power Company is an arena that has been so trampled by design improvement that the very machines themselves almost seem to affect the transient air of the summer boarder.

The reciprocating engine added a condenser and then bowed out to the vertical turbine almost before its connecting rod brasses were worn in. The vertical turbine was tipped over and went horizontal to eliminate the thrust bearing and facilitate the handling and the flow of the steam about the time the plant oiler became convinced that the animal in question was truly a generator of electrical energy and not a gas storage tank.

Simultaneously the steam boiler went from the fire tube type, with a lineage directly traceable to the threshing engine, to water tubes, and then blossomed out with water walls, surface heaters, economizers, and a growing maze of hot gas passages transferring more and more of the heat generated in the fire to the steam. The steam in its turn was forced to accept pressures 10 to 20 times that of early practice, and to countenance temperatures, which may make the metals exposed to it glow like a harvest sunset. Even the furnace itself has come in for its quota of change. The manual feed gave way to stoker drive and then the coal was ground to dust and burned as an air blast torch closely approximating the procedures now also used when oil or gas becomes the basic fuel.

During this period the fuel consumed to produce a unit of electrical energy was decreased so markedly and so persistently that the annual coal pile to produce the power requirements of 30 years ago for this country with today's equipment, would be in the order of one-fifth of what it was then. The magnitude of this saving may be more easily grasped if it is considered that even at today's low rates of fuel consumption, a turbo alternator normally operated, still burns each year a pile of coal whose cost reasonably approximates the purchase price of the bare turbo-alternator itself.

On this basis a 10% saving in fuel consumption in a new unit over the old would about pay the carrying charges on the new unit itself.

Thus, if by some magic hand all obsolescence, and the associated changes which have stimulated it, could be suddenly obliterated there wouldn't be a solvent power company among us; but with obsolescence we have witnessed the rise of a vigorous major industry.

But obsolescence can also be caused by design developments which result in advantages other than improved efficiency.

(2) New designs of existing types of equipment sometimes can offer a sufficient reduction in maintenance costs to justify replacement, and obsolescence is then dictated by this consideration and, not by time alone. Modern types of disconnecting switches and circuit breakers, particularly of high current and high interrupting rating, and also the general line of modern medium voltage bushings are prime examples of this situation.

(3) Again the development improvement may be in terms of a reduction in space requirements, and although it would seem that once the space were made available to install a device, little objection subsequently could be made to the space requirement of that equipment, yet directly reverse results have been experienced. Conditions have arisen where rental charges for the space used have either been initiated or increased after installation, and even the overall space at the place where the device was installed has been subjected to a critical review in connection with the placing of added equipment, and in many of these cases the space requirement has directly influenced the period of usefulness of the device, at least in that location.

(4) There is, too, the situation where the advance in the art may be in the direction of improved operating characteristics on general types of equipment. We have, by way of illustration, modern high speed relays and breakers which jointly greatly reduce the clearing time for system faults, with a corresponding major reduction in the probability of ensuing fires or of directly resultant damage from the arc itself, such as the burning of laminations in rotating machines, or the melting down of line conductors.

Likewise there is the consideration that the capacity of the overall power system to properly transport electric energy from the place where it is generated to the place where it is sold can be considerably increased by the use of fast relays and breakers, and thus by a small expenditure in replacement of these devices, the equivalent of a considerable investment in additional transmission equipment can be accomplished.

Also, we have the better protection against over-voltage afforded by modern devices designed for this purpose. This improvement, itself, often may be able to show a sufficient reduction in system damage to justify the purchase of these newer devices.

And again there are the improvements in highway lighting, which we are being told will more than pay their way in terms of a most conservative evaluation of the resultant reduction in automobile accidents.

The period of service of existing equipment thus can be easily influenced by the improved operating characteristics of new equipment, and if the new devices are put into service with the proper selective judgment, obsolescence really will result in an increase in income to the enterprise.

(5) Then too, there are occasions where a reduction in purchase price will decidedly tip the balance between further maintenance expense and the replacement of the equipment. House meters immediately come to mind as a ready example of this situation.

(6) Another type of improvement with the advance of the art that has a direct bearing on obsolescence is progress toward increased reliability of equipment. Limiting ourselves in this field of many possibilities to instances which by their nature will suggest the considerable range available to us; we have the modern potential transformer fuse as one extreme and the up-to-date essentially lightning proof transmission line as the other. The substitution of adequate fuses could result in the prevention of considerable equipment damage; and one good transmission line can be as valuable as two poor ones. Thus in shortening the period of service of the inadequate device, one hastens the day when the new thing can begin to render a greater service, which is just another way of referring to obsolescence.

(7) We now come to a possibility which I certainly could not omit in addressing this gathering—I refer to developments which, of themselves, result directly in a reduction in the loss of revenue already rightly earned. The outstanding example, of course, is the modern customer-service arrangement, from entrance cable to meter and fuse assembly. Certainly the increase in the monthly collections of several Power Companies through a reduction in current diversion resulting from installations of this type have been most effective in terminating the period of service of the older equipments long before time alone would have counted them out.

(b) We could continue in this vein for a considerable period but time is at our heels so we will pass from examples of the influence of developmental advances in devices and equipment, to the effect of the improvements in the design of the broader composite elements of the power system.

(1) When Electric Service Power Companies first came into existence they appeared down at the river or at the beach by virtue of their water requirements, and as close as possible to the main part of town where the major load was, for with 125-250 volts 3 wire direct current distribution, the power couldn't be carried far.

As the load grew and the distance to it also increased, alternating current appeared and took over the newer load areas; and once established, began a progressive encroachment on the existing direct current systems. The direct current areas in dense sections, effectively resisted this alternating current attack, as the radial feed approach of the alternating current system did not offer the reliability provided by the direct current network.

The alternating current network concept then appeared and not only gave alternating current service a reliability comparable to the older direct current networks, but pointed the way to a standardization of the electrical power offered to the small consumer, which in turn offered the possibility of uniform requirements for all the rapidly growing appliance production.

These changes in the system of distribution are of broad basic significance and their acceptance or rejection in a given case has to be based on much besides age of existing equipment.

(2) As the power house down by the river on main street grew, there was an increasing demand from the customer for service reliability, for he no longer kept his kerosene lamp trimmed and ready as a lighting reserve. This desire for better service was met by a determined effort on the part of Power Companies to make the delivery of electric energy to the user as continuous as possible. This reliability of service ideal thus keynoted all power system design for many years almost to the point of developing some restriction in the breadth of design viewpoint. The power plant of that era in particular approached a completely duplex mechanism; one unit of each type for regular service and another for reserve. This procedure grew until in some instances its complexity came close to producing functional failure.

This was the era of extensive low tension bus systems, massive steam headers, complex switching arrangements, the common excitation bus, and the mammoth integral power generating station. The ultimate in this design trend no doubt would have provided the possibility of operating any feeder, with any breaker, on any bus, on any turbine, excited by any exciter, and fed from any boiler, through any steam pipe, in the plant.

While this concept of main and reserve devices, when applied with judgment, was sound for the Power System with the single power plant, it steadily became less and less necessary as the number of power plants increased, in response to the limitations of the original power plant location.

When the initial plant was supplemented by a second one, each tended to become a reserve for the other, and to the degree that this tendency became an actuality, the need for the old reserves in No. 1 Plant, or the inclusion of reserves in the design of the New Plant, disappeared, and we enter the second period of system design where *diversity* replaces *duplication* as the guarantee of service reliability.

Out of this general change in concept have arisen many detailed system design improvements which, by their greater ability to serve, have accomplished the combined result of forcing existing devices out of use and of increasing the Company earnings by so doing.

The following few suggestions may help to visualize this situation the more easily.

(2_1) The unit layout for boiler and turbine.

(2_2) The unit arrangement for alternator and step-up transformer.

(2_3) The unit exciter for the generator.

(2_4) The unit arrangement of station auxiliary power feed.

On the system end this same design influence has stimulated the following corresponding changes:

(2_5) The use of more simple substation designs where reliability is obtained through back up from other substations. This trend has produced the custom built unit substation where simplicity backed up by diversity is the design slogan.

(2_6) The rise in the number of both sub- and generating stations has been making it increasingly rational and economical to operate equipment by supervisory control from a common point, or even fully automatically.

(2_7) Also with increase in system size and diversity has come an increasing need for communication and the carrier current telephone has become an effective competitor of the wire telephone systems which were early developed as an integral part of a complete power system.

Each of these changes has laid a heavy hand on the life tenure of existing procedures and arrangements, but at the same time when properly applied, they themselves have brought new income and a new public interest in, and acceptance of the electrical industry as an extraordinary agency for serving society.

Thus again the forces producing obsolescence have been of great value.

(B) Finally we come to the consideration that obsolescence can also be caused by the passing of the condition for which the equipment was purchased, which in general is occasioned by the normal evolutionary growth of the power system as distinct from the simple march of time.

As systems were extended to meet the rising demands for electric service in new areas, certain repercussions from

these additions were reflected into that portion of the system already existing, and these repercussions there resulted in certain increased requirements.

(1) A very common example of this situation is the growth in the magnitude of the short circuit currents throughout a system due to such additions. These heavier currents threaten the continuing existence of all circuit interrupting devices, as limited by rupturing and closing in capacity and of all current carrying equipment as limited by both heating and mechanical stresses occasioned by the increased current.

Common types of interrupting devices to experience this threat are—oil circuit breakers, fuses, and motor starting equipment. The current carrying equipment usually affected by excessive currents are again breakers—busses—old current transformers — disconnecting switches, older types of low reactance power transformers and occasionally even conductors themselves.

The replacements necessitated by these circumstances while again not directly related to time, differ, however, from those previously discussed by appearing to offering no direct increase in revenue by their adoption. In one sense this is true, for certainly there is a tendency for growth itself to force into the discard the whole power system as already developed. The degree to which this tendency becomes an actuality depends however upon the wisdom with which the development of the Power System is planned.

Broadly speaking the evolutionary growth of Electric Service Power Systems to date has followed the general pattern of beginning with a power generating source feeding an adjacent load. The ensuing load growth soon overshoots the area which can be rightly covered at the original voltage. Next the voltage is either stepped up to reach the new load area or a new generating source is developed nearer the new load, in which case an interconnection is made to permit the enjoyment of the economies which result from diversity and mutual back-up, and this tie again is commonly at higher than the original generating voltage. So in either case transmission comes into the picture, as a backbone holding together the rising generating and distribution areas and at an eventual increase in voltage, while the generating and distribution sections thus integrated by the transmission, tend to remain at the voltage levels at which they originated. Further load growth results in the backbone transmission eventually becoming extensive and often complex, and a new higher voltage backbone transmission then appears, and the old transmission backbone is broken up into new distribution areas, all held together to form an integral system by the new vertebral column of transmission, until it in turn gets too burdened with branches and tap points; and then the cycle is repeated.

We, to date, have seen this ascending spiral of higher and higher system backbone voltages start from the lowest generator voltage and rise to the status where 230 kv transmission in some parts of California has become essentially glorified primary distribution, and where transmission itself has reached 287 kv as a present maximum.

Apparently the rate of this progression is now slowing down, as all life processes eventually do. This does not mean that the transportation of electricity is going into its dotage, but simply that the justification for covering greater and greater distances with transmission is fading out.

There is a basic economic advantage in serving considerable areas from a single-physically interconnected system, but the enlargement of such areas ultimately obeys the law of diminishing economic return, and thus not only does the need for transmitting electrical energy diminish as the distance becomes greater, but also its economic justification rapidly disappears with the increase in transmission costs incident to the longer lines.

This forced march through the history of system development has indicated that normal system growth automatically transforms every transmission system into a distribution system at a certain stage in the evolution of the overall system, and that incident to this transformation the newly formed distribution system normally breaks up into sectionalized areas of more limited extent.

This change in status automatically removes the transformed areas from further pressure resulting from general system growth, for the short circuits in these distribution sections becomes practically fixed for all time if these areas are held, as good system design of itself dictates, to some reasonable maximum load limit. Thus, if the advances in over-all system design are intelligently timed with respect to the system growth the changes which are logically chargeable to system expansion will largely defend the system as a whole against these reflected pressures resulting from such expansion.

If, however, the system development is allowed to lag behind the optimum rate for normal healthy advance and thus dwell over-long at some stage in its cyclic onward journey, then the pressure of system load growth will be reflected into the existing system and will eventually result in investment expenditures of the emergency—or patch-up type. Such a diversion of investments from normal system growth requirements to stop-gap procedures will result in the replacement of equipment to little ultimate system advantage. In this contingency we would have what we might term renegade obsolescence of the most vicious type, for not only is it directly non-contributing to the Company income, but it has the secondary effect of later forcing the rate of expenditure for system development to bring the system back into step with normal growth.

Despite the trend in the foregoing discussion, it, of course, is fully recognized that when obsolescence finally comes to you for evaluation, it must be reduced to a time basis, and this analysis is in nowise intended to befog this fact.

The sustaining force back of this discussion has been the hope that a review of the underlying forces which determine obsolescence may be of service in enabling you more rationally to assign the time values to it when through you it becomes a matter of definite record.

In coming to a close, a quick objective mental backtrack through the presentation just completed suggests that if one were to follow the implications therein presented to the limit, it might be concluded that the correct theoretical plan for the future of the Power Company would be to stimulate obsolescence to the nth degree, through unlimited development, for apparently by this procedure each company eventually would be making an infinite profit, though on an infinite capitalization.

As such an attainment admittedly would be pushing you gentlemen off the deep end, to where your profit and loss accounts would of necessity leave the realm of reality and approach in prospect the vague complexity of an Einstein formula, it is conceivable that a shadow of apprehension may shimmer for an instant in the background of someone's consciousness.

If this should occur it would be the logical expectation, in view of the present urge to tinker with every law and

(*Continued on page* 552)

Further Comments on Depreciation

Discussion from the Floor

Before the Joint National Accounting Conference, E.E.I. and A.G.A., Chicago, Dec. 12-14, 1938

By Maurice Scharff
Consulting Engineer

REFERENCE has been made to the Report of the Special Committee on Depreciation of the National Association of Railroad and Utilities Commissioners. As a text for my first contribution to this discussion, I would like to read to you a few sentences from that report:

"It is doubtful if any one can say, as the exact manner in which the loss in service value of property progresses is dependent on several variable forces. Deterioration, action of the elements, inadequacy and obsolescence, among other causes, all influence the rate of depreciation. It may be that the effect of deterioration is relatively constant and that therefore the depreciation from this cause might be represented by a straight line. The forces of inadequacy, obsolescence and other functional causes of depreciation are not necessarily constant. At one time their effect on the rate of depreciation may be considered to be substantial; at another, of little consequence.

"To say that the effect of all these various influences affecting the rate of depreciation of property can be expressed by any one formula, which conforms precisely to the progress of depreciation in all cases, is a delusion. The technicians entrusted with the determination of depreciation rates are not imbued with prophetic vision as to events which lie in the future." (Pg. 17, NARUC Report of Special Committee on Depreciation, submitted to meeting in New Orleans, Nov. 15-18, 1938).

Now, my comment on this text is that I believe there will be general agreement with these statements, both throughout the accounting and engineering staffs of the regulatory commissions, and among the accountants and engineers of the gas and electric industries. Where such a consensus of opinion exists on so important an aspect of this controversial subject, it seems to me unfortunate that the Special Committee should have recommended, in complete inconsistency with this opinion, the adoption of straight line depreciation and an age life formula as the basis for the determination of depreciation both in accounting and in valuation.

A consistent recommendation, in my opinion, would have been that regulatory commissions and utility companies alike be encouraged to develop more complete factual data and improved

MR. SCHARFF

methods of measurement, both of the actual depreciation existing in property at a given time, and of the actual loss during depreciation during each year, with the aim of making the determination of depreciation, both in accounting and in valuation, accord more and more nearly with the facts.

For my second contribution to this discussion, I have taken my text from the Federal Power Commission classification, from which I quote a sentence from Electric Plant Instruction 2, relating to determination of original cost:

"It is likewise not intended that adjustments shall be made to record in electric plant accounts amounts previously charged to operating expenses in accordance with the uniform system of accounts in effect at the time or in accordance with the discretion of management as exercised under such uniform system of accounts."

(F.P.C. Uniform System of Accounts, pg. 38, effective January 1, 1937).

My comment on this text is that I find, in my own experience, that too many accountants, both on the staffs of the regulatory commissions and in the utility industry, insist on considering this phase of the determination of original cost, and the problem of creating and maintaining adequate depreciation reserves as if they were wholly unrelated. Some members of regulatory staffs interpret the provision I have quoted as prohibiting the inclusion in original cost of the cost of identifiable units of physical property clearly used and useful—or of portions of the cost of such units, particularly where such portions of the cost would be described as overheads—when such cost, or portions of cost, though demonstrably incurred, were charged when incurred to operating expense. The same staff members sometimes argue that deficiencies in depreciation reserves below amounts corresponding with the retroactive substitution of depreciation accounting for retirement accounting should be made up by debit to surplus account. Conversely, some utility accountants contend that restoration of such costs should be freely permitted, with credit to surplus account, and with no relation whatever to the problem of reserve adjustment.

I submit that such one way interpretations are equally undesirable, and that a more helpful position, both for Commission accountants and for utility accountants, would be that recommended by Commissioner Joseph B. Eastman of the Interstate Commerce Commission, in his Proposed Report on the Railroad and Telephone Depreciation cases, dated August 15, 1929 (although not included textually in the final report of the Interstate Commerce Commission in these proceedings, dated July 28, 1931). I quote from pages 51 and 53 of the Proposed Report:

"It would seem fair, where the fact can be established that part of the cost was charged to operating expense, to regard such expenditure as a past provision for depreciation, and to permit an adjustment of investment which will permit the inclusion of a corresponding amount in the depreciation reserve." (pg. 51).

"Note A.—If the company is able to show that the cost of any property included in account 701 (a) or account 902 (a) was in whole or in part charged to operating expense, it may, with the approval of the commission, increase the total of account 701 or account 702, as the case may be, by the amount of such charges to operating expense and contemporaneously credit a corresponding amount to its depreciation reserve."

(pg. 53, Proposed Report, Interstate Commerce Commission, dated August 15, 1929).

I have suggested that this position would be a helpful one, for both the Commissions and the utility industry. In support of this suggestion, it is pointed out that it would remove from controversy the interpretation of the one provision in the instructions relating to the determination of original cost as to which agreement is most difficult, without affecting by one dollar the original cost less reserve for depreciation; at the same time, it would in many cases, make a real contribution toward facilitating the solution of what is undoubtedly the most difficult problem now facing the utility industry and the regulatory commissions —viz., the adjustment of reserves in connection with the transition from retirement accounting.

As my final contribution to this discussion, I would like to make a plea for tolerance, open-mindedness and a genuine professional spirit in the approach to this subject by the accountants and engineers of both the regulatory commissions and the industry. Certainly the universal recognition of the difficulty of the problem would justify a degree of humility, and an absence of dogmatism on the part of all of us. If frank cooperation in this spirit can be brought about, and the effort to gain technical advantage in legalistic contests put aside, I have strong hopes that the dangers of which Dr. Morehouse warned yesterday can be avoided, and that this and other regulatory problems can be solved in a way that will be to the advantage of the commissions, the companies and the general public.

By L. R. Nash

Honorary Member, Depreciation Accounting Committee, E.E.I.

THERE seems to be much confusion of language in the new accounting systems with which we are struggling. They provide, as have all previous systems, for the retirement of property no longer useful at its net cost. That is the practice in all standardized accounting. We set up reserves for such retirements, these reserves representing to the best of our judgment the accrued liability for retirement. BUT, we are required to substitute the word depreciation, the ordinary definition of which is associated with the idea of value. Heretofore our accounting practice has not been concerned with value, but we are now expected to record loss in value each year or month in connection with our records of cost. Why cannot our language and records represent directly and honestly just what we have always done and are continuing to do?

I have read with much interest the recent report of the NARUC committee on depreciation which I understand was very favorably received in New Orleans. I see no objection to its generalities or its argument for consistency between reserves and the depreciation found in valuations except that the accounting regulations do not permit provision for certain undefined causes of retirement which might otherwise be recognized. I do criticize the large amount of space devoted to mathematical methods of setting up reserves, all on the assumption that we know enough about useful life to justify their application.

My many years of experience with utility property has made me skeptical of such knowledge with respect to much of such property. I have seen much such property disappear long before its expected time and other units last much longer, with no discernible rule connecting them. The reason for this lies in the character of the causes of retirements. During the first year of the E.E.I. I persuaded the Accounting Committee to make a study of the causes of retirements, partly to confirm the results of my own earlier studies on a much smaller scale.

MR. NASH

These studies all showed a marked preponderance of non-physical causes, such as utility people had always known in a more general way. It is the inevitable uncertainties of such causes that make the application of actuarial methods to useful life so futile. As an illustration, I often think of our experience with steam turbines. Some years ago we thought many of our low pressure units were reaching the end of their economic life and we watched our reserves accordingly. Then along came the topping turbine and gave the older units an entirely new lease of life.

Our present trouble seems to be that our friends connected with the commissions do not appreciate the significance of economic factors and others which cause us so much uncertainty. Do they not think that we are still trying to set up a straw man as an excuse for adhering to a flexible method that is really obsolete? I readily agree that some of the flexibility in evidence in past years was unjustifiable and misleading. But we should not abandon a sound principle because of its abuse. Perhaps we shall be forced to do so, but there are many steps between it and a procedure based on an unsound principle.

Assuming that we shall have contacts with some practical minds in regulatory circles, it is my judgment that we should make further and comprehensive efforts to demonstrate the soundness of our views as to the uncertainties of useful life. This can best be done by further data on actual experience with our own properties. We already know that non-physical causes predominate, but we may not know their varying effects upon similar things. This suggests the collection of useful life data in volume from many sources, classifying it by kinds of property, and showing the very wide ranges encountered under normal conditions. I suspect that some such work is already in progress, but I would still stress the need of its thoroughness.

If by such means we can confound the actuarial sharks, the way may be opened for some system of zones within which our appropriations shall be kept in the light of existing reserves, embodying some of the thoughts which I drafted for the system of accounts proposed by E.E.I. before the present standard systems were promulgated. I am not yet reconciled to the idea that a uniform program of recording loss in value among our cost records will ultimately prevail.

An Accountant is Perplexed

By Francis J. Brett

Niagara Hudson Power Corporation, New York, N. Y.

A paper presented before the Joint National Accounting Conference of the Edison Electric Institute and the American Gas Association, Chicago, Ill., Dec. 12-14, 1938

THE first thing I want to tell you is that I did not choose the title of this talk I am about to give, nor did I have anything to do with the descriptive sentence immediately following it. Your Chairman, Mr. Rodey, selected the title, "An Accountant is Perplexed." I can't tell you who is responsible for the warning, "A surprise is in store for you."

I shall not attempt to tell you whether the warning is appropriate or not, since it refers to you rather than to me, and obviously you cannot comment upon its appropriateness until I have finished. Since the title refers to me, however, I should like to suggest that it fairly describes my condition, and I make this suggestion after taking the trouble to explore the meaning of the word perplexed in Webster's New International Dictionary. There the meaning of the word "perplexed" is defined as involved, confused, doubtful, anxious, puzzled, bewildered, embarrassed, etc. There isn't one of those emotions or sensations that I do not experience at least two or three times a day in discharging the duties for which I am held responsible in the companies with which I am connected. I will go even further and admit that I run the whole gamut of these emotions every time I contemplate the bookkeeping and accounting methods and procedures which the industry is either following or preparing to follow in order to comply with certain highly theoretical accounting requirements prescribed by governmental authority in one form or another.

First let me say that I have been in this industry ever since the New York Public Service Commission prescribed its first Uniform System of Accounts, which was thirty years ago. I feel, therefore, that I am somewhat justified in saying that during those thirty years I have learned some things about business in general and this business in particular and the place it should occupy, as well as the place it does occupy in the general scheme of things, one of which is—and I say this without any mental reservation whatsoever — that where competition does not exist, in the ordinary accepted sense of that term, regulation of some sort should, particularly in our industry, which plays such an important part in the economic and social phases of human development.

MR. BRETT

With that point of view in mind, and knowing the value of financial and statistical reports in studying an industry, and further, knowing that it is usually by comparison that we learn things, I can see and understand perfectly why a regulating commission prescribes a uniform system of accounts.

So that to me regulation is an essential part of our industry, just as engineering, construction, operating, law, accounting, sales, et cetera, are a part of it. Our problems affecting our customers, our security holders, or the public are therefore the problems of the Commission, and the reverse of that is equally true, namely, that comparable problems of the Commission are ours.

* * *

Now I might spend the time allotted to me by going through, in a very sketchy way, the Federal and State Classifications, account by account, but that would be wasting your time as well as my own. I believe that we would spend our time to better advantage if I discussed, in rather broad terms, what I regard as the most important changes we are required to make in underlying accounting principles in order to comply with the provisions of the new system of accounts which was prescribed by the Public Service Commission, State of New York, effective January 1, 1938, particularly of the federal and other state classifications recently prescribed.

* * *

The first is depreciation accounting. The old classifications prescribed the retirement reserve theory of accounting, which, as you know, is based on the concept that the property as a whole is deemed to be permanent and if properly maintained there is no loss in service value, excepting as parts of it are actually retired. This theory requires the maintenance of a reserve in an amount estimated by the management to be sufficient to equalize, from year to year, as nearly as possible, losses incident to the retirement of fixed assets and annual appropriations are made accordingly. In other words, under the old classification we were required to provide for the retirement of property.

The new classification prescribes a depreciation reserve theory of accounting, which is based on the concept that there is a continual loss in service value of property as it is used, a loss which is in excess of what can be restored by current maintenance, and which is caused by the consumption or prospective retirement of property. Under this theory we are required to make annual appropriations to cover this estimated loss in service value of the entire physical property, excepting land.

Both the retirement reserve theory of accounting prescribed in the old classification and the depreciation reserve theory of accounting prescribed in the new (and mark you I refer to both as

theories of accounting) provide for the actual retirement of property. That is one feature both theories have in common. The chief difference between the two is this question of loss in service value and when that loss occurs.

There is another feature which is common to both theories of accounting, but in a negative sense, and it is that the honest application of either theory has no effect whatsoever upon the causes of, or the actual retirement of property.

Now, of course, I could go on indefinitely, but I was not invited here to discuss the pros and cons of this very controversial subject. I referred to the provision in the old classification because I thought it would be the simplest way in which to briefly illustrate what was actually prescribed in the new classification.

I do not want to leave this subject of depreciation accounting, however, without suggesting that the matter of changing from the one theory of accounting to the other presents some very practical and very serious difficulties which should be very carefully considered in order that the most practical solution may be found, and I know of no better way in which to summarize the thought I have in mind than to quote an excerpt from the report submitted by the Public Service Commission of Wisconsin to the National Association of Railway and Utilities Commissioners, at its 45th Annual Convention at Cincinnati, October 11, 1933. Before quoting it, however, I wish to point out that the new classification does not prescribe the straight-line method of accounting for depreciation, but it does prescribe depreciation accounting, which may, and probably will require larger annual appropriations and larger reserves than were necessary under the retirement reserve method. The excerpt is as follows:

"Where the desire exists to establish a consistent policy, commissions are faced with the problems of effecting a transition from practices that have been countenanced in the past. To illustrate, most of the electric and gas utilities policy of "straight-line" depreciation accounting usually necessitates depreciation expense allowances larger than the retirement expenses theretofore charged. To make this transition, however, constructive from a long-time point of view, is difficult at a time when a rate reduction is being insistently demanded. Furthermore, during the transition period, when the retirement reserve is neither a true retirement reserve nor a true depreciation reserve, the treatment of such a reserve in finding accrued depreciation presents many perplexities."

Now just a word or two upon the matter of Property Records and Original Cost.

The new Uniform System of Accounts prescribes that not later than December 31, 1938, each company shall have completed the studies necessary for determining the original cost of its property and classifying it as of January 1, 1938, in accordance with the plant accounts prescribed, and that pending such classification each company shall maintain its present accounts as sub-accounts of electric plant in process of reclassification. This requirement, considered in connection with the Property Records Order which was served on all companies, therefore requires each company to classify its fixed capital by the prescribed plant accounts and further by units, and then price these units at original cost as defined in the Uniform System of Accounts. Any excess of book cost over original cost as defined shall be charged to an account entitled, "Electric Plant Acquisition Adjustments." I shall not attempt to deal with the converse of this situation.

All of the companies in New York State, so far as I know, are preparing property records, but it is too soon to tell anything definite about them, because, with the possible exception of a few small companies, these property records have not been completed.

This account, "Electric Plant Acquisition Adjustments," while included in the fixed capital group of accounts, presents certain aspects which I believe are serious. First of all, its name suggests that it is of a temporary nature. That may be true in some cases, but it may not in others. Why not call it just what it is, or at least what I think it is, namely, "Difference between book cost of property and original cost of such property as defined by the Public Service Commission." If it is intended as a temporary account, or one that will be subject to adjustment from time to time, then what are the companies in the state going to do about it in their published accounts or annual reports; and further, if it is set forth in the annual reports, what will the investing public know about its nature from reading its title? What will the Securities and Exchange Commission know about it? What will that Commission feel we should do about it?

So considering the Property Records Order as a part of the new system of accounts, the three major changes required are, in my judgment:

(1) Depreciation reserve accounting
(2) Property Records
(3) Pricing property at defined original cost and handling any difference between book cost and original cost as defined through an adjustment account.

It is too soon to offer full and complete comment or criticism regarding these features, however, until we know more about what the Commission proposes to do with the information when it becomes available. We do know one thing, that we are all attempting to comply in good faith with these provisions, and as an evidence of our good faith we are spending a lot of money in that attempt.

* * *

I have one other general comment that I should like to make, but before doing so I want to take just about a minute and a half to talk about myself. As I said at the beginning, I have spent practically my whole life in this industry, at least 30/46ths, or if you like 15/23rds of it, and during the course of those years when I was an office boy, stores records clerk, time slip gatherer, payroll clerk, paymaster, and ever since, I came to know the types of men who design, construct, and operate these properties. By that I mean I became well acquainted with laborers, rackmen, truckmen, groundmen, first and second class linemen, generating and substation operators, machinists, plumbers, carpenters, blacksmiths, electricians, and their respective helpers, trouble shooters, meter readers, meter men, storekeepers, straw bosses, foremen, superintendents, managers, as well as accountants, engineers, lawyers, and the higher executives. I have seen the properties with which I have been connected expand by reason of acquisitions, new capital additions, etc., from about $15,000,000 of assets to approximately $600,000,000, and the number of corporate entities or companies again with which I have been connected increase from six to sixty, and then, by reason of mergers, consolidations, liquidations, etc., decrease to twenty. You cannot go through an experience of that kind without learning a great deal about human nature, particularly if it has been your primary job *to install*, as distinct from prescribe, not only a uniform system of accounts, but a uniform system of bookkeeping procedures underlying a system of accounts.

Now what has all that got to do with the new uniform system of accounts? Well, in my opinion a great deal, because I have learned from actual ex-

perience that if you want to obtain the best results possible in your accounting and bookkeeping you will keep your accounting and bookkeeping requirements simple, which leads me to the point I am making, that in far too many instances the requirements of the new uniform system of accounts are too complicated, too refined, too involved.

For example, the distinction which is made between transmission and distribution. While it is perfectly easy to differentiate between a high tension steel tower cross country line and the pole lines that run throughout the streets of our cities, on the other hand, it is extremely difficult to make any such distinction where poles support both the so-called transmission and so-called distribution circuits. This difficulty is recognized in the new classification, because it directs that where poles or towers support both transmission and distribution conductors the poles, towers, anchors, guys, etc., shall be classified as transmission, which means that to the extent that those poles are carrying distribution circuits they are being carried in transmission fixed capital accounts. On the other hand, the classification provides that where an underground conduit contains both transmission and distribution conductors the underground conduit shall be classified as distribution system; the conductors in both instances will be classified according to the purpose for which used. The classification further provides that land and structures, other than rights of way, used jointly for transmission and distribution purposes, shall be classified as transmission or distribution, according to the major use thereof. Then there is a note with respect to stations which reads as follows:

"Stations which change the energy from transmission to distribution voltage shall be classified as distribution stations."

There are, however, a few stations in existence that change some of the energy received at that station from transmission to distribution voltage, pass some of it through at the same voltage to another station, and distribute some of it directly to a customer.

Now let's take another example where a pole line supports transmission conductors, distribution conductors, and possibly street lighting conductors, and keep in mind that the distribution conductors must be further split between primary and secondary. Let us assume that a few of these poles have been blown down in a sleet storm, and you send your trouble crews out to repair the damage. If these crews replace two or more continuous spans, which constitute a unit of property, then the men making out their time slips will have to split their labor four different ways. On the other hand, if it is possible to splice the lines so that the repairs necessary do not constitute a unit of property, then their time will have to be split three ways.

I'll admit that if you have a hard and fast rule the men that do this work will furnish some arithmetical computations which will represent their best guesses only, and their best guesses are never very good. The only figures which will be reliable will be the total number of hours spent on the job and the material used on that job. You would, in my opinion, be able to get a reasonably accurate split between the hours spent by the crews on the poles as distinct from the hours spent on the conductors, but when you go beyond that requirement for segregation you are asking these men to speak a language they do not understand or appreciate, and you are very apt to find, according to the record, that some one of the circuits, that is, the transmission, distribution primary, or distribution secondary, or street lighting circuit was actually replaced by the crews at no expense to the company.

In other words, you will never succeed in making a bookkeeper or a statistician out of a lineman. Perhaps it is because he has far too much respect for his honored profession.

I honestly tried for years to work out some system that would intelligently differentiate between transmission and distribution capital and transmission and distribution expense on a uniform basis, in the companies whose accounts come under my supervision, and I am very frank to admit that I failed miserably. I never could get any two men in the one company to agree on what constituted transmission capital and what constituted distribution capital, to say nothing of getting men in the different companies together on that subject. The only fellow who has a chance to succeed in doing that sort of thing is the accountant with but one company to look after. Then he can make some arbitrary segregation to his own satisfaction that will serve his accounting requirements, but I would wager that if he asked the chief engineer of his company to make a segregation and he did not furnish him with the basis of his split, the chief engineer's ideas would be different; and further, should that accountant take over another company he would find himself in "hot water" if he tried to be consistent, and by the time he had twenty or more companies he would begin to appreciate the meaning of the word "impossible."

The first classification prescribed by the Public Service Commission in 1908 required the companies to make a distinction between transmission capital and distribution capital and between transmission expenses and distribution expenses, but after years of experience it was found that this distinction did not serve the purpose for which it was intended and the classification of 1923 permitted the combination of transmission and distribution capital.

While this is perhaps the greatest example of too much refinement, there are others throughout the classification, such as attempting to differentiate between primary and secondary circuits, currently prorating overhead expense to cost areas, and so on.

My whole point here is directed to the fact that the new classification is based more on a cost accounting theory than it should be, and in a number of instances, due to arbitrary allocations of some sort or another, basic factual information will be distorted to a point where, if poor judgment is used in making arbitrary allocations in the first instance, that poor judgment will be perpetuated in the records of the company. I suggest in this connection, for your consideration, the advisability of returning to one of the greatest fundamentals of good accounting, namely, to have your books reflect (in so far as it is possible; obviously some estimates must be used) facts only, in order that these facts so reflected will remain on the permanent records of the company and constitute indisputable evidence of its financial status and its financial history.

Then if cost analyses are to be made, necessitating the use of a great many arbitrary allocations and estimates based upon opinion, such analyses can be made currently if desired on an auxiliary record, without distorting or destroying the basic factual information, and what is of greater importance, the chance someone else might have to check or test the accuracy of the judgment used in making such analyses.

I also suggest, for your consideration, the thought that one of the principal reasons for having accounts is to be able to lay before the management of the

company, or companies, information upon which to base its judgment as to the future course of the company. While this new classification does not prohibit the keeping of additional records, following its requirements will not tell you periodically what it costs to run the various departments of the company, at least that part of each department the cost of which is charged to operating expenses, for example, the accounting department, the engineering department, etc. As a matter of fact, the old classifications were not what they might have been in this respect.

In other words, it is my opinion that this quest for certainty in accounts can lead to a point of refinement where it defeats its own purpose, where the results you obtain will distort, if not destroy, factual information, and where management finds it difficult, if not impossible, to obtain currently, information essential to the proper conduct of the business. Or to phrase this same thought in axiomatic and time-honored form, I believe that you should make the books fit the business, and not attempt to make the business fit the books.

I have confined my remarks to the uniform system of accounts prescribed for electrical corporations, but my comments with respect to these underlying principles apply equally to the uniform system of accounts prescribed for gas companies.

* * *

Now one other thought of a general nature upon this very broad subject and I will finish. I think it is about time our industry (and here again let me remind you that the accountants of the regulatory commission are as much a part of it as we are) began to give serious consideration to the fact that the general accounting of a company is one thing, cost accounting is another, the keeping of statistics another; all very important phases of accounting, all necessary. If, however, in developing one phase you destroy another, you have made a very serious mistake. That is, in my judgment, what has happened in our case. The cost accounting or statistical phases have been developed to a point where the general accounting has suffered. From the standpoint of importance it stands third instead of first.

To describe our position colloquially, we have gone statistical in our effort to correct some of the abuses of the past; we have gone mathematically mad. Because the Retirement Reserve theory of accounting made it possible for either the dishonest or ignorant to phenagle the account, we seek to correct it by the application of an involved mathematical formula and curves which its advocates claim is the answer. Because in a regrettable number of cases companies failed to make retirements when they should have been made, the industry is spending millions in taking inventories and preparing property records, the refinement of which staggers the imagination.

All of which reminds me of a true story told to me by a man who had been treasurer of a relatively large company for about thirty years, and who was, at the time he told me the story, retired from active business.

He told me that shortly after he was made treasurer, twenty-five years before his retirement, his cashier stole $25.00 from the petty cash fund of $100.00. The shortage was discovered, the cashier fired, and after a most careful checking as to character a new cashier hired. In order to avoid any further defalcation this man, who was then treasurer, insisted that the cashier, at the close of each day, turn in his cash to him, accompanied by a slip showing exactly the number of units of money, both paper and coin, he was turning over. The treasurer would then issue his formal receipt, and the whole operation would be reversed the following morning. That went on for 25 years and no cashier had ever beaten the company out of another $25.00.

I was a guest at that man's house, so I was not in a very good position to tell him what I thought of him, but you don't need much mathematical or financial training to see that that man got a nickel in his eye and lost sight of a dollar. That daily checking business of his cost his company at least $7,500 in 25 years, but he was quite right—the company never lost another $25.00!

* * *

In conclusion may I say that an essential qualification of an accountant is that he be somewhat of a pessimist, and I suppose that the years I have spent in the accounting end of the business have had their effect upon me in that direction. In spite of that, however, I am optimistic enough to believe that some day this classification will come up for revision before a group of individuals representing the Commission and representing the industry; that these individuals will sit around a table in an atmosphere of friendliness, understanding, confidence, and sincerity, each side respecting the rights and duties of the other, and that that meeting will not be held in a hearing room, where your opinions or ideas must be expressed by one or two words of one syllable. When that time comes I hope that the keynote of that meeting will be simplification, and again I know of no better way in which to illustrate the thought running in my mind than to say that during the last session of Congress I understand it passed over a thousand bills which later became laws; during the last session of the State Legislature it passed nearly a thousand bills which later became laws, and these were added to thousands of others previously enacted, all of which makes me marvel the more at the splendid job which was done by One who, thousands of years ago, wished to leave with humanity a correct code of morality, one that would govern its every thought and its every action, one that would be understood throughout the world down the ages to the end of time by the most ignorant on the one side and the most intellectual on the other, and He succeeded in doing it by leaving ten simple, understandable commandments.

W. Paxton Little Honored at Testimonial Dinner

W. PAXTON LITTLE, one of the pioneers in New York State electric power service, was the guest of honor at a testimonial dinner given by a group of his associates of the Niagara Hudson System, November 22, at the Union Club, New York City. Mr. Little retired as treasurer of Niagara Hudson Power Corporation, December 1, upon the completion of 45 years of service with the corporation and its associated and predecessor companies.

The name of W. Paxton Little is well-known among people engaged in the public utility industry in the United States and Canada, since he was chairman of the accounting committees of both the National Electric Light Association and the Canadian Electrical Association.

At the time of retirement, Mr. Little was treasurer of Niagara Hudson Power Corporation and an officer of several subsidiary companies. He is also a member of The Bankers Club of America. He is a former resident of Buffalo, Niagara Falls and New York City, and now lives in Greenwich, Connecticut.

Engineering and Capital

By C. W. Kellogg
President Edison Electric Institute

A talk before the New York Section of the American Institute of Electrical Engineers, December 13, 1938

IN discussing the general public utility situation, I believe, for the reasons I shall develop later, that it is best approached from a consideration of the relation between engineering and capital, a relationship that is honored by time. Capital is that part of the product of human labor which producer either does not need in order to live, or which, through self-denial, he has deliberately refrained from using to live. Capital can be transformed into the tools and machinery for producing more capital and employing more labor. The forms which capital takes, like houses, factories, highways, railroads, utilities and other items too numerous to mention, are the very basis of the comforts of life and the way of living and the going concern which we call civilization. Capital in the abstract is one of man's greatest discoveries. It is as marvellous a thing as electricity in the way it can be transmuted from one form to another. It is even more effective than electricity in the fact that it can be stored without loss—something we have not learned to do with electricity. Think what a revolutionary effect would be produced in the electric service business if electricity could be stored as effectively as gas or water!

No one can be expected to exert the effort and self-denial required to accumulate capital without some incentive. That incentive, under our American system, is the right to own and possess the capital so accumulated and to be able to earn a return on it either from using it oneself or from loaning it to others. The amount which one can earn on capital depends, if he uses it himself, upon his energy and ingenuity, or, if he loans it out to others, upon the going value of capital. This going value is dependent upon the supply of capital and the demand for it in the community in question. There are other unavoidable charges against capital, consisting of the loss in use, which we generally call depreciation, and the cost of protecting it, which appears in the form of taxes and insurance. All of these charges are, as a rule, accurately determinable from the conditions surrounding any given situation.

The function of the engineer with respect to capital is clear and definite and the two are indissoluble. From the moment a given amount of capital has been created, the question at once arises, for the owner thereof, as to the form into which it shall be transformed so as to be sufficiently useful so that it will assure to the owner a return which will pay at least the fixed charges on it, and so that it will serve to employ labor and purchase commodities for the general welfare.

In our modern civilization the major part of the liquid capital created each year has gone into the plant required to carry on industry, to transport its product to market or to serve the daily wants of the people and of industry. Immediately there arises the need for engineering study and advice on how to use this capital, for it is essentially an engineering problem to determine how capital should be used to the best advantage. The correct answer to this question is fundamental to our whole economic life as a nation. Finding the right answer includes not only the best design and most economical construction of the new plant itself, but also the study of every detail—markets, raw materials, operating costs and the like—which will go to make the new plant a success or failure in the matter of earning the fixed charges on that new plant, thus not only furnishing labor to those in need of employment but also conserving the capital from destruction by being improvidently laid out.

The more complicated our plant becomes, the more difficult and intricate become the problems of plant design and of the estimates of operating results to be expected from that plant. This responsibility rests upon the shoulders of the engineer and the responsibility is a heavy one. For upon the success with which this responsibility is discharged, depends the integrity of our plant investment and therefore the very foundations of our economic structure. This responsibility is a personal one to the millions of thrifty citizens who tacitly depend upon the engineer to see that their savings (the results of the sweat of their brow asd the self-denial of their character) are not wasted or dissipated in ill-conceived schemes. The reason it is such a social sin to waste capital is that it is saved-up human labor and the glory of the engineering profession is that it has always been dedicated to the conservation of capital by using it skillfully for the most effective development of our natural resources.

The great electric utility business is definitely founded on engineering. As a business it is just as dependent as any other business on public relations, sales promotion, collections, accounting, etc., and much more dependent than most businesses on capital financing, being about the most capital-greedy industry in existence. All of these parts of the superstructure of business must, however, rest on the integrity, dependability and economy of the service which the engineer alone has originated and developed.

How many of you, in passing in and out of Washington, have paused to read the words cut into the stone over the portals of the Union Station? Written nearly a quarter of a century ago by one of the greatest masters of epigram of our times, they still are fresh and full of meaning. Here is what they say about the thing we work with and for:

Electricity
Carrier of Light and Power,
Devourer of Time and Space,
Bearer of Human Speech over land and sea,
Greatest servant of man—Itself unknown.

What an arresting thought, that man's greatest servant is an unknown thing! We know not what it is but only what it does. Our engineering experience with electricity comes down to finding what it will do under a given set of conditions. After all, however, what it does is what makes electricity man's greatest servant, so that this knowledge is more useful and practical

than the other and we should, therefore, be as content as engineers (who are always seeking for more knowledge) can be.

If electricity was man's greatest servant a quarter of a century ago, how much more is it so today! In the intervening period, in our own country, electric generating capacity has increased about six-fold; energy output has increased nine-fold and the number of customers has grown by about 22,000,000. The average home today uses over three times as much electricity as it did in 1913, and the growth of this average home usage continues unabated month by month to this day. In fact, by all the tests of present size and diffusion among the people, the use of electricity a quarter of a century ago was a pitifully small thing.

While my own specialized knowledge is in the electric light and power business, it is only fair to state that during the last quarter century the great Bell Telephone System has made as striking progress as have the electric companies in their line—in their great service of bearing human speech over land and sea. Figures furnished to me by the Bell Telephone System show the following achievements during the period in question:

The number of telephone stations from 1913 to 1938 increased from 5,000,000 to 15,750,000.

In the matter of long distance telephones: while in 1913 Denver was about as far as could be reached from New York City, at the present time 37,000,000 telephones can be reached by long distance in all parts of the globe. This figure is 93% of all the telephones in the world, located in 73 countries. They include all countries having over 100,000 telephones, except Russia and New Zealand.

During this same quarter century the miles of interstate toll lines have increased from 519,000 to 6,790,000 and the number of toll messages from 8,000,000 to 54,000,000, while the average time of connection has been reduced from 6 minutes to 1¾ minutes.

I would not give you the impression that the electrical development of our country is completed. The field is nowhere near exhausted and we still have far to go. The industries where stagnation has set in are those where engineering development and invention have largely ceased and this is not true of the electric utility business. We must not forget that the wonderful progress of the electric industry has in the past rested both upon engineering and on the fact that in that industry capital could get a fair rate of hire and could look with reasonable hope for reward for risks assumed. If and when these reasonable expectations should become doubtful, the blighting effect will be on the investor, the engineer and the public served.

The vast growth in the utilization of electricity in the last twenty-five years has involved an integration of many conflicting forces. For example, at the beginning of the period to which I have referred, the electric companies paid out $5 in taxes for each $100 they took in, while today they pay out in taxes over $16 for each $100 received. Similarly, the average weekly cost for labor per employee in the electric industry is two and one-half times* as great today as it was twenty-five years ago. The general level of wholesale prices of commodities has risen 15% since 1913.

These are high hurdles to jump, yet in spite of them the average cost of a kilowatthour of electricity in the home is today down to slightly less than one-half the average of 1913. This is no mean accomplishment for the great servant, for naturally unit cost enters as a very definite element in the economic value of any service. Thus while the unit cost of the human service we had to buy to operate our business *increased* two and one-half times, the unit price at which we sold the services of the "unknown" servant in the home was cut in two.

For this great accomplishment in the public service the credit goes partly to the engineer and partly to the salesman, and, like any ideal partnership, neither could have been completely successful without the other. The contribution of the engineer was to reduce the amount of fuel required to produce a kilowatthour by 68% during our test period and to make substantial reductions in the cost of the equipment to generate and use electricity; and that of the salesman (reinforced by the basic work of the manufacturers and the rate engineers) was to increase the use of electricity in the average home three-fold during the period.

If I have appeared to emphasize what has been done for the householder during the last quarter century, it is merely because he is the most numerous, comprising as he does about 85% of the electric customers. The accomplishments with respect to power in industry have been equally notable. The increase since 1913 from 3.15 to 6.3 in the horsepower used per man in industry has been due principally to the convenience and economy of supplying power to machinery electrically — both engineering accomplishments of the first order. Foreign visitors to our country have attributed our industrial supremacy as a nation largely to the extent to which mechanical power is used in manufacturing. Also, it should be noted that the economy in the manufacture of electric energy (which results from the fact that 60% of the total electric energy sold is used by manufacturing and transportation) helps very materially with the cost to the householder.

Nothing could illustrate more clearly the indissoluble union between engineering and economics than the marvellous history of electrical development in our country during the last quarter of a century which I have outlined so briefly; for good engineering must lead to practical results. I recall in my student days at the Institute it was frequently called to our attention that any fool could get together a set of levers and gears and cams to do almost anything, but that the true engineering genius was he who could cause a difficult physical feat to be performed simply.

This question of economic practicality comes sharply to the fore in connection with some of the governmental electric power projects of recent years. The people have been so stirred up by propaganda about a force whose mystery seems to give it powers of performing all miracles, even economic ones, that in some cases practical values seem to have been overlooked. For example, just because the growth of use of electric service has been rapid, does not mean that every power development will be an economic success, even if no apparent market exists to absorb its output. Merely because water is a gift of nature that flows downhill without apparent cost, does not make every hydroelectric project *ipso facto* sound economically—it might be cheaper to produce power from fuel. The fact that electricity can be transmitted for long distances, with relatively small losses in energy, does not mean that in any given case it will pay to do so, unless an economic saving can be shown to result from the transmission in question.

Another common economic error about electricity arises from a failure to realize the inherent nature of the business. I am sure if the facts were more generally understood, the public reaction would

*N.I.C.B. "Road Maps of Industry" No. 148. Oct. 28, 1938.

be different on the power subject. The electric utility business requires about $6 invested in plant to produce one dollar of gross revenue. From this simple but inescapable ratio flow important consequences for the business. From this ratio it follows that the raising of capital is one of the cornerstones of the business. The average industry requires only about 73c. of capital per dollar of annual output—about one-eighth as much as our industry. For hydroelectric properties this ratio between capital investment and annual gross earnings is likely to be about 10 to 1, or about 13 times as great as for average industry.

Now anything that affects capital is also bound up with credit. The electric utilities, though they are conceived and operated along engineering lines, must also conform to the laws of the marketplace, if they are to raise the capital needed for the erection of their physical properties. These laws are not legislative enactments, they are the principles embodying the experience which mankind has developed over many centuries of economic history. The utilities were obliged not only to raise adequate capital, but they also wanted to get that capital as cheaply as possible—for another of the inevitable consequences of our capital-to-earnings ratio is that fixed charges on investment comprise on the average five-eighths of the cost of furnishing electric service to the customers, and over 90% of the cost of hydroelectric power furnished wholesale, so that the cost of capital is of preponderant importance in the cost of rendering electric service. The cheapest cost money is that raised by the sale of bonds, but here again the law of the market-place steps in to fix a limitation. Bonds to raise this cheap money are salable at a price to produce money cheaply only if secured by about an equal amount of some other money. So there arise at once the two very practical questions of who is going to put up that other money and of how he is going to be persuaded to do so.

In our country this problem has been worked out over the years by the method of state regulation. Stated very briefly, the state recognized to begin with the six-to-one capital ratio I have mentioned. It realized that from this basic ratio flows another consequence; namely, that in order to prevent waste of capital, the purveyor of this unknown force must be alone in the field, but that he may continue to be alone only as long as he does a good job. The state said further, "We will allow you to charge rates for your service which will yield a rate of return on your investment such that investors will be induced to continue to put up the money needed to build the additional plant required by the growth of your service." Relying on this regulatory system, built up over the years, the people who were willing to take a greater risk in hope of a correspondingly greater reward, put their money into the stocks of utilities in amounts sufficient adequately to secure the bonds. And in this way, there has been built up the present very satisfactory ratio of bonds to total capital in the electric utility business.

From your viewpoint as engineers you have always been limited in the plans you could carry out by your ability to convince someone that they were economically sound, and by his ability, based upon your showing, to get the investing public to agree with him sufficiently to put their hard-earned savings into the project. You and I know of many a great engineering project we should have liked to put through if only the money could have been raised to pay for it.

Then came the New Deal. To many engineers it may have seemed at first like a dream come true, like the answer to the engineer's prayer to have unlimited billions of taxpayers' money, or other billions borrowed on the expectation of payments to be collected in future from taxpayers (some of whom may not yet be even born) to spend *ad libitum* on all sorts of projects, without having to convince some hard-headed investment banker, or some equally obdurate investor, that the projects would pay. In case any taxpayer, whose money had been put into these projects, should object, he could be stilled by incantations on the general welfare or by bookkeeping methods that appear to show a profit where none exists.

I said this all seemed like a dream come true, but I wonder if it isn't more like a mirage.

Have we as a nation yet counted the cost of what might be called "political engineering"? Does the public realize yet that the estimated deficit in the Federal Budget for the one fiscal year 1939 (not the expenditures but the deficit) exceeds by $133,000,000 the total aggregate expenditures of the Federal Government during the first 76 years of our national life (1789 to 1864 inclusive)? The deficit for two months in modern times, July and August, 1938, is $40,000,000 greater than the annual average Federal expenditure for the period from 1900 to 1913.* It would be tragic enough if the capital wrung from the people in taxes in recent years had been wastefully or unwisely spent, but the money represented by our 40 billion national debt constitutes a prior claim on the future labors of our people, which will have to be met from those labors before spare capital for future needs can be forthcoming.

I am inclined to believe that the engineer owes a duty to his country to point out the economic fallacies where they exist in any engineering or construction projects his country undertakes. No one knows better than he the dire consequences of engineering development divorced from economics; no one realizes more clearly than he that costs go on and costs exist whether or not some government agent says they do. The historic episode of King Canute was perhaps the first on record where government agents claimed that if a prohibition was placed on the tide rising, it would not rise. What we need today is another King Canute, to show his faithful subjects that the laws of nature go on operating, regardless of statute laws and that the wise government is that one which conforms to natural law and fact, rather than trying to oppose them or pretend they don't exist.

No one more than engineers should be able to point out the extreme distortion represented by the Government furore about electric power in recent years. Can it be that the public authorities do not realize that electricity forms but 1½% of the average family budget and that it forms but about 1½% of the costs of production for the average manufacturing business? Is it sane or sound to spend $1,651,000,000 of the people's money, as the Government is planning to do, on something which has such a relatively small economic importance? Is it wise (even assuming that otherwise the 1½% item is considered of such transcendent public importance) to choose for the public welfare a form of activity which requires more capital than almost any other for its development?

Let me develop this last point somewhat more in detail. The bill for electricity last year in the 22,939,020 farms and other homes of the nation which

*National Industrial Conference Board Release Nov. 7, 1938.

used it was $808,000,000, or an average of about 9½c. per day per home. This business required, on the six-to-one ratio I have mentioned, the use of an investment of at least $4,848,000,000, probably nearer $5,500,000,000, since residence service requires a somewhat larger proportion of plant than the average of the electric business. This is an enormous amount of capital to tie up for such a small item in the family budget.

By way of contrast, I find from the Statistical Abstract of the United States that the people spend about $2,500,000,000 annually on the aggregate of such items as candy and ice-cream, soft drinks and patent medicines, soap, chewing gum, cosmetics and cigarettes. An analysis of the balance sheets of typical companies manufacturing each of such articles indicates that the capital required to produce them is about $700,000,000. Or, stated briefly, the home electric bill averages about one-third as much as the miscellaneous items I have mentioned and yet takes about seven times as much capital to produce. One wonders whether the taxpayers' money could not be more effectively conserved by a free handout of items that require so little capital, rather than by selecting as the basis for largesse such a relatively great capital user as electricity. This is especially important, since capital raised by taxes is taken by force from the people.

May I, in closing, summarize what I have said before:

Capital and electricity are two of man's greatest discoveries and most useful servants.

The supply of electricity to the people requires a disproportionately large use of capital per unit compared to most other commodities or services.

The essential function of the engineer in the body politic is the conservation of its capital for the most efficient use of natural resources. This is a heavy responsibility since wasteful use of capital in one direction reduces by that much the free capital available for other necessary development.

Conservation of capital goes to the root of our economic situation as a nation, both because the huge national debt represents a mortgage on future capital production and because, in our modern world, labor cannot be usefully employed until capital has first furnished it the plant, and tools with which to work.

The production of capital will be greatly retarded unless the self-denying citizen has the hope of getting a fair wage for the fruit of his self-denial.

As electrical engineers and citizens, therefore, we should make every effort to see that the public understands the indissoluble relationship between electric service and capital. The realization of this should lead to a more sympathetic attitude toward the millions of frugal citizens whose savings are devoted to the electric service of the nation. Instead of regarding them as "princes of privilege," "taking toll of the people," we shall see that they are in reality joint servants with the engineers, in making available so widely to the people, the tireless labors of the "Greatest Servant of Man."

Prime Movers Committee Meeting

W. E. Caldwell, *Chairman*

A MEETING of the Prime Movers Committee was held December 5-6 at Institute Headquarters in New York.

Mr. Engle related the problems being studied by the Boiler Subcommittee. The effect of the condition of furnace walls on the superheater temperature was extensively discussed. Operating conditions, slagging characteristics of different coals and types of walls vary sufficiently to make it necessary for any plant to decide individually on the frequency of deslagging needed to keep superheater temperatures at the proper level. The problem presents increased difficulties when the use of different fuels in one furnace is considered, some of which have been built to use coal, oil or natural gas. The rolling-in of tubes in high pressure boilers was discussed with regard to the usefulness of the extensometer method for checking the degree of rolling and to the desirability of retesting boilers at full hydrostatic pressure after rerolling. The latter method, which is necessary whenever new tubes are installed, subjects the boiler to excessive stresses and is not considered necessary after rerolling, in which case application of the full boiler feed pump pressure appears to be sufficient.

Mr. Fellows discussed the work of the Chemistry Subcommittee, which is considering a number of problems such as feedwater treatment, corrosion, reconditioning and testing of oil, steam purity, etc. Supplementing a paper presented by Professor A. E. White at the Annual A.S.M.E. Meeting during the week of the Prime Movers Committee Meeting, it was reported that cracked flanges have been found also in the downcomers of one of the earlier high pressure boilers.

Mr. Muir reported work of the Combustion Subcommittee under way on the comparison of straight and bent tube boilers. The Subcommittee will consider a number of subjects, such as dust eliminators, problems involving pulverized coal, slagging conditions, cleaning, etc.

Mr. Crofts introduced Mr. Albion Davis, who presented a discussion on the influence of governor characteristics and load changes on system frequencies. He suggested a study of individual governors with a view toward better coordination of governors and elimination of poor governors.

Considerable discussion developed on the subject of noise and vibration in high pressure reducing valves. A number of additional matters covered by the Turbine Subcommittee were discussed, such as condensers and the hydrogen cooling of generators.

Dr. Davidson presented an extensive report on an investigation of boiler tube failures, with slides showing photographs and photomicrographs. He advanced the thought that development of hydrogen during oxidation of the steel causes intercrystalline separations in the steel. The temperature in these tubes has been appreciably above 1,000 F., as shown by metallurgical indications.

On Tuesday morning, Professor Christie reviewed some studies made by him on the losses of high temperature topping turbines.

Considerable discussion developed on the subject of different types of soot blowers, the safe rate of starting of high pressure boilers, and other related subjects.

Following the Meeting a number of inspection trips were available to the members in connection with the program of the A.S.M.E. Annual Meeting.

The E.E.I. and Its Activities Relative to the T.V.A.

Excerpts from Testimony of Bernard F. Weadock, Vice-President and Managing Director, before the Joint Congressional Committee to Investigate the Tennessee Valley Authority

NOTE: The Committee met in Room 318, Senate Office Building, at 10 A. M., Nov. 23, 1938. Present were: Senator Schwartz, Acting Chairman; Representative James M. Mead, Vice-Chairman; Senator Frazier, Representatives Barden and Thomason; Representatives Wolverton and Jenkins; Francis Biddle, Counsel for the Committee.

MR. BIDDLE: Will you give your full name to the reporter, please, and your address?

MR. WEADOCK: My name is Bernard F. Weadock. I am the Vice-President and Managing Director of the Edison Electric Institute of New York City.

MR. BIDDLE: Have you any prepared release or copy of your statement that you would like to submit to the Committee? I see some material there, or are those all just exhibits?

MR. WEADOCK: That is material in answer to your request.

* * *

A Bit of Ancient History

MR. BIDDLE: Were you counsel for the National Electric Light Association?

MR. WEADOCK: Yes, sir.

MR. BIDDLE: And its General Manager or Executive Director, or—I forget the term.

* * *

MR. WEADOCK: My recollection is I was appointed Managing Director of the National Electric Light Association in 1932.

MR. BIDDLE: And when did that association dissolve?

MR. WEADOCK: 1933.

MR. BIDDLE: Was that during the investigation of the Federal Trade Commission, and somewhat as a result of the facts revealed in that investigation?

MR. WEADOCK: I would rather say that it was dissolved as a matter of the mis-statement or exaggerations of the Federal Trade Commission, rather than the facts.

MR. BIDDLE: I didn't realize I had said the "facts," but anyway it was dissolved as a result of the activities of the Federal Trade Commission.

MR. WEADOCK: As you say "activities," I would say yes.

* * *

MR. BIDDLE: Was the old National Electric Light Association that association which had on its payroll or contributed to the expense of a large number of professors and educators in this country to help its educational work?

* * *

MR. WEADOCK: I don't believe it had any on its payroll, and I think you will find that the Federal Trade Investigation report will show that the majority if not the entire members of the profession who were in the electric light and power work received, on technical subjects, compensation for attending conventions. You must remember too that the old association had as a membership a group classified as professors and educators, and they were actually members of the association, participating in the engineering, technical and other problems of the Association.

MR. BIDDLE: Did the Association contribute $15,000 a year to the Massachusetts Institute of Technology?

MR. WEADOCK: It did, and it did it for technical research, which * I feel it should take pride in doing.

* * *

On an Industry's Obligations

MR. BIDDLE: Do you like the word "propaganda" better than the word "educational"?

MR. WEADOCK: No, and I think there is quite a distinction between the two. I have no aversion to propaganda as such when it is confined to its real intent and purpose. I believe that an industry such as ours has a perfect right to inform the public. I think it is its obligation to inform the public.

MR. BIDDLE: So do I.

MR. WEADOCK: Provided it is done honestly, openly, fairly, and accurately.

MR. BIDDLE: And gives both sides of the picture?

MR. WEADOCK: No, I don't feel there is any obligation to give both sides.

* * *

Purposes of the Institute

MR. BIDDLE: Now, I think the last question was if you would describe the purposes of the Edison Electric Institute and then show the contrast about which we had asked.

MR. WEADOCK: The objects of the Edison Electric Institute, as contained in its constitution were first—

REP. JENKINS: Mr. Chairman, may I ask a question? Is the Edison Electric Institute under investigation here, or what is the reason you have to go into the details about this?

MR. BIDDLE: Is this addressed to counsel?

ACTING CHAIRMAN SCHWARTZ: This is preliminary in order to show the interest of the witness and what his general situation is. I don't think there is anything irregular about it. I don't think he does.

* * *

MR. WEADOCK: The first object is the advancement, in the public service, of the art of producing, transmitting and distributing electricity, and the promotion of scientific research in such field, second the ascertainment and making available to members of the Institute and the public factual information, data and statistics relating to the industry, and third to aid its operating company members to generate and sell electic energy at the lowest possible price commensurate with safe and adequate service, giving due regard to the interest of consumer, investor, and employee. Those are the main objects.

At the time of the organization of the Institute, a very careful, detailed study —[Editor's Note: Mr. Weadock was

*EDITOR'S NOTE: This payment was for Research Work on Comparison of Mechanical Properties of Wood Pulp and Manila Papers as Insulating Materials. The period covered was July 1, 1921 to Feb. 29, 1928, inclusive.

here interrupted by a question as to the date of organization of E.E.I.]

* * *

MR. BIDDLE: Now, having given the policies and purposes of the organization, will you contrast those purposes with the National Electric Light Association and point out any differences that you may wish? Or are there, so far as what you have testified to is concerned, any substantial difference?

MR. WEADOCK: Oh, yes, there are many substantial differences.

For instance the Institute has no so-called Public Relations Department. It has no publicity man; it is not engaged in any active campaign of any kind anywhere, except for the technical advancement of the industry along commercial lines, if you please, engineering lines, statistical lines, things of that type. We are as near a true trade association, supplying members service or facts and information, as can be found.

* * *

The Request to Testify

MR. BIDDLE: . . . On July 26 you sent a telegram to Senator Donahey as follows:

"The testimony of Tennessee Valley Authority as given at yesterday's hearings"—

That was Mr. Lilienthal's testimony—

"before your Committee is so incomplete and misleading that in fairness to the entire electric power industry an opportunity for correction should be given.

"The Tennessee Valley Authority power rates are not based upon the legitimate costs which have to be met by private utility companies.

"The Tennessee Valley Authority sells power at less than cost and the loss must be met out of the taxpayers' money. An accurate analysis of this question of power cost is so important to the American people generally that we respectfully request an opportunity to present testimony on this question at your hearings. Bernard F. Weadock, Managing Director, Edison Electric Institute."

Would you now like to present the testimony that you requested an opportunity to present in the telegram?—[Editor's Note: Testimony referred to in telegram was presented by Mr. Kellogg.]

* * *

MR. BIDDLE: After hearing Mr. Kellogg, you prefer not to present the testimony that you requested?

MR. WEADOCK: The two are the same; instead of my presenting it, Mr. Kellogg did it.

History of The Institute's "Comments on TVA's Reports on Allocations"

MR. BIDDLE: You did prepare I understand a so-called "Allocation Report"?*

MR. WEADOCK: Yes, sir.

* * *

MR. BIDDLE: Will you let me have it?

MR. WEADOCK: Yes, sir.

MR. BIDDLE: Please.

MR. WEADOCK: But with this statement for the benefit of the Committee.

At the time that this subject was up before the Committee, the question of the yardstick, and subsequent to my request for a hearing, I asked our Engineering and Research Department to go into the matter thoroughly, with the idea of presenting a memorandum which could be used as a trial brief, if you please, or as an assistance to the witness in submitting testimony before this Committee. . . .

There was no publication of the document whatever. The TVA learned of its existence and requested a copy and I as politely as possible advised them that it was not a public document, and it was not available to them.

Subsequent to that, they sent a representative to our office in New York and sought to get a copy there, and when informed that it was not a public document and not for publication, they expressed rather keen disappointment.

Following that I think, Mr. Biddle, you requested a copy of it, and I told you in substance what I am now stating, I thought that it constituted a memorandum for our own use, and consequently in keeping with our own policy should be preserved for our use at this Committee hearing.

I believe that as a result of that refusal, or declination rather, I don't like to refuse anything, and I have not to your people, I am here by virtue of a subpoena.

MR. BIDDLE: Well, the subpoena was issued because you refused to bring in your so-called allocation study, and it seemed to me that if an allocation study had been made with respect to TVA it might be interesting for the Committee to see it, so as to get the point of view of your association.

MR. WEADOCK: Now, you will agree that my refusal was not a matter of obstinacy.

MR. BIDDLE: I hadn't suggested that, oh, I hadn't suggested that at all, Mr. Weadock.

* * *

MR. BIDDLE: Just let me ask you this. Do you or do you not wish to have the Committee have the benefit of this (allocation) report? If you think it is not accurate or it does not fairly represent your views, I don't believe the Committee would want it. But if on the other hand you think it would be helpful to express your views in this situation and you would like the Committee to have it, I think they would enjoy seeing it very much.

MR. WEADOCK: Mr. Biddle, I can modestly say this memorandum is the most complete, thorough and accurate that has been prepared on the subject.

MR. BIDDLE: Fine.

* * *

Concerning Information Requested

MR. BIDDLE: Well, then there is nothing left, is there, Mr. Weadock, except for you to testify with respect to certain information that I requested from you?

* * *

REP. JENKINS: Mr. Chairman, let me ask first, what did you request?

MR. BIDDLE: I am going to ask him now.

REP. JENKINS: Well, tell me.

MR. BIDDLE: Well, I requested his annual dues and the basis of their payment, and I requested what fees and amounts were paid in the Ashwander Case by the Edison Electric Institute, and I requested to be furnished with any statements that were put out with respect to TVA, it being the duty of this Committee specifically under the resolution to investigate any methods used by the public utility companies with respect to TVA operation. I think that pretty nearly covers it.

I requested certified copies of minutes in order to show specifically what fees and payments were authorized to be made by the Edison Electric Institute.

REP. JENKINS: For what purpose?

MR. BIDDLE: With respect to the Ashwander and other suits, if there were any others. Particularly, I will, of course, ask the witness under what provisions of his constitution those payments were made.

I shall wish to know who his directors were, and what action the directors, particularly Mr. Willkie and Mr. Groes-

*This report was published in November, 1938, E.E.I. Bulletin, after presentation to the Committee.

beck, took with respect to those resolutions.

The Committee will, of course, remember that Mr. Willkie's companies were at that time under contract with the TVA. Mr. Willkie as a matter of record, and I think it is fair to show that, objected to the payments of these amounts, or at least voted against them.

That covers in a general way the information.

REP. JENKINS: Let me ask you this, Mr. Biddle?

MR. BIDDLE: Yes.

* * *

Why the Ashwander Case Comes Up

REP. JENKINS: What does the Ashwander Case have to do with any of these things we are required to investigate?

MR. BIDDLE: The resolution has something like six clauses, directing us to go into all of the litigation, specifically that against TVA, its results, and so forth. We have done it at some length from the TVA side, and to couple with it, I think we ought to do it from the other side. It is a direct requirement of the resolution.

REP. JENKINS: In all fairness, though, doesn't the Ashwander Case sit on its own bottom, except of course if there is anything—doesn't a reading of that case develop all of the facts you need? Do you know what the issues were, and what the decision was? What purpose could you have except to find out if it was financed? Of course if it is financed by any of these companies, and they have hidden their participation in the financing, I think that would be perfectly proper to bring out, but if it is all open and above-board, I don't see the purpose.

MR. BIDDLE: It is above-board, but nobody knows anything about it yet. It will be known when the evidence is produced.

* * *

Concerning EEI Dues and Legal Services Rendered

EDITOR'S NOTE: Examination of the witness covering approximately a dozen typewritten pages is here condensed. In substance it was developed by the Committee Counsel:

that membership dues of the E.E.I. are based on one twenty-fifth of one per cent of gross electric revenue of operating member companies, and that dues totaled $600,558.15 for the year 1937;

that Messrs. Wendell Willkie, Commonwealth & Southern Corporation, and C. E. Groesbeck, Electric Bond & Share, were both members of the Board of Trustees of the Institute;

that the Edison Electric Institute, as Mr. Weadock testified, "employed counsel to advise the Institute, and to assist or participate in litigation involving the constitutionality of the TVA and the PWA legislation, because the Federal Government was engaged in the preparation and execution of plans for power development at many locations throughout the United States, on a new policy and program which threatened the complete destruction of the electric light and power industry in the United States. Huge sums of money were to be spent in the development of enormous amounts of power, in locations where the existing private installations had capacity in excess of the demand . . . " [Here Mr. Weadock submitted a map and tables showing that the threat of government financial competition is national in scope];

that full publicity, through releases to the press, as to the employment of legal counsel and the fees connected therewith, had been given by Mr. Thomas N. McCARTER, then president of the E.E.I. on behalf of the Board of Trustees;

and that, neither Mr. Willkie, nor Mr. Groesbeck voted, at a meeting of the Board of Trustees of the Institute, on the resolution authorizing employment of counsel by the E.E.I. for service on the Ashwander case, and that in fact Mr. Willkie, although not present at that meeting, had requested that he be recorded as opposed to the motion, since the case involved the validity of contracts executed by the Alabama Power Company, an operating company of the Commonwealth and Southern Group.

Further clarification of the status of counsel employed by the Institute on the PWA cases is contained in testimony as follows:

How Counsel Served

MR. BIDDLE: . . . The amounts that you have testified to were in addition to counsel fee paid to counsel by those operating companies, in the litigation, were they not?

MR. WEADOCK: Oh, surely; each company bore its own expense. We didn't undertake to furnish counsel for individual companies. All we did was have Mr. Baker act as sort of a general counsel—and argue the case.

REP. JENKINS: And your participation in these cases was not vital. In other words, you didn't have what we lawyers call the laboring oar in any of these cases, did you?

MR. WEADOCK: No, sir.

REP. JENKINS: And you were not, or the persons that you employed, weren't necessarily collaborating with the other attorneys, were they?

MR. WEADOCK: They were cooperating upon questions of pleadings, and things of that type.

REP. JENKINS: They were only looking after the matters that you were interested in?

MR. WEADOCK: That is right.

REP. JENKINS: And I presume that the counsel for the individual company had the full authority over the case, and they could have dismissed the case or prosecuted the case whenever they pleased, regardless of your activity?

MR. WEADOCK: Absolutely, that was the main point, because we did not want to wish counsel upon an individual company. All we tendered was Mr. Baker's services to the individual companies.

ACTING CHAIRMAN SCHWARTZ: As a general proposition, Mr. Baker and his assistants were directing the course of the boat, and the local attorneys were pulling the oar?

MR. WEADOCK: The local attorney had complete charge of each individual case, but had the advantage of the advice and counsel of Mr. Baker's firm, and Mr. Baker's firm was scheduled to argue several cases in the Circuit Court of Appeals, and in the District Courts, and were prepared to argue in the Supreme Court when Mr. Baker died.

* * *

The Case for Private Ownership

MR. BIDDLE: Would you look at page 112 of the Bulletin entitled "The Case for Private Ownership"* from which Mr. Kellogg has already testified, and read the very brief paragraphs on page 112 entitled "TVA Rates?"

MR. WEADOCK: I think that we have extra copies of this, and I would be very glad to let the Committee have them. (Reading)

"TVA RATES

"Question. Rates of the TVA are only half as much as the rates of privately owned electric utilities.

"Answer. The TVA rates are political rates made without reference to cost. All the people of the United States are paying a large part of the bill of electric customers in a few TVA communities."

And the authority for that statement is Mr. Willkie, in a speech delivered "Who Pays the Bill."

"It is a case of the many being taxed for the benefit of a few.

*Publication 83 of the Institute, published in 1936.

"The TVA fails to pay expenses. In 1935 the deficit on account of interest made up by the Treasury Department out of general funds amounted to 1½ cents per kilowatt hour sold."

The authority for that statement is Mr. William M. Carpenter, "Hidden Costs at Muscle Shoals," published in our Bulletin.

"If these rates were imposed on the whole United States with no U. S. Treasury to fall back upon, all electric utilities, municipal and privately owned, would soon be bankrupt."

MR. BIDDLE: Is that the material which is termed in your foreword of this pamphlet, an accurate presentation of the subject, which was used and sent to college debating societies so that they would have a fair view of it?

MR. WEADOCK: Yes, sir.

MR. BIDDLE: I think that that is all.

Why It Was Prepared

MR. WEADOCK: Now, just one minute, if I may, Mr. Chairman, I would like, in view of Mr. Biddle's reference to this, to make a short explanation of what this really is.

I think that you all have copies.

We were requested by the National University Extension Committee on Debate Material, an association which conducts annual debates throughout the high schools of the country, to furnish material for that debate upon our side of the question. This request was made in April, and we finally complied with it in September, hesitating in the meantime to do so. This book represents a part of our presentation.

SENATOR FRAZIER: Where did you say the request came from?

MR. WEADOCK: From the National University Extension Committee on Debate Material.

The TVA was requested to supply material, and did do so, and after the TVA had supplied its material, we supplied ours.

REP. WOLVERTON: Why did you say you hesitated?

MR. WEADOCK: Because under our purposes, we felt that it was not our duty to go into a school with information. We have been scrupulous to avoid any such action, and when the authorities requested it, I submitted the matter to the Board of Trustees, for their approval, before we did it.

REP. WOLVERTON: Well, I don't know why any apology should be made or hesitancy in granting a request of that kind. You still have the right to advance different viewpoints in this country.

* * *

Further Discussion of the Case

MR. WEADOCK: Now, if the Committee would desire, I would be very glad to furnish the rules of the debate, and our written request to participate.

REP. JENKINS: I think that that ought to be produced, but will we get who is going to furnish us now with what the TVA produced in response to the same request. Will you do that, Mr. Counsel?

MR. BIDDLE: We have a complete not only summary but all of the press releases of the TVA, available at any time, particularly in the yardstick question.

REP. JENKINS: I want to know with reference to this thing, you brought out this (Interscholastic) debate, and you inferred that it wasn't exactly proper on their part.

MR. BIDDLE: We thought when we called the TVA witnesses we would confront them with their releases in the same way, and produce them in evidence.

REP. JENKINS: Be sure that you do.

REP. WOLVERTON: I don't take from what you say, Mr. Biddle, that there is any impropriety in their having done so, as indicated by Mr. Jenkins?

MR. BIDDLE: That is a matter of judgment, and I would defer to the Committee in that.

MR. WEADOCK: If that is involved, I would be very glad to go into this, because I feel that there can be no conscientious objection to what was done.

MR. BIDDLE: It didn't seem to me that the statement in the bulletin,—

REP. WOLVERTON: I don't think that we need to have the judgment of the Committee. I thought that we could express our opinions in America.

MR. BIDDLE: I think that the question is whether that is a fair factual expression of the facts, rather than a point of view which might be termed propaganda, and which the witness doesn't think is unfair propaganda, and that is a matter for the considered judgment of the Committee, I should think.

REP. WOLVERTON: That is the value of what they have given as facts, that is for the judgment of the Committee, but I would hate to see the Committee put in a position that it was deciding whether this constituted a right to express a viewpoint.

MR. BIDDLE: Certainly not. I think that this Institute should express its viewpoint always, under any circumstances, if done on a factual, fair basis.

REP. WOLVERTON: Well, Mr. Jenkins' remarks indicated that you were offering it for that purpose, and I thought it was doing you an injustice to let the record stand on that.

MR. BIDDLE: I am very glad that you corrected that, and I appreciate that, and of course the Institute ought to express its opinions under all circumstances, but I think it is interesting to know what the opinions are, and how they are based.

REP. JENKINS: Everybody knows that this wasn't brought here to help this man's testimony, it was brought here to confute him, rather than to assist him in any way.

MR. WEADOCK: It cannot be done on this question, because there isn't any question that has ever been involved in this Institute with which we have taken more scrupulous action, and more honest action, and given more of the exact truth, and I want to call your attention to one thing, and this is from the announcement of the Association which promotes these debates:

"The question of the electric utilities will be brought directly into the public view as never before. It must be observed moreover that in every debate, both sides of the proposition will be urged."

And their request was for us to present, if you please, information upon the private side in contrast to the public side, and that is what those documents are.

* * *

Basis for Statement that TVA Rates are Political

MR. BIDDLE: Well, then, what basis is there for the statement (in The Case for Private Ownership) that TVA rates are political, made without reference to cost?

MR. WEADOCK: Because they are, it is not possible to give the TVA rates as now in effect upon the basis required of an ordinary private operating public utility.

MR. BIDDLE: Mr. Weadock, you say that the TVA rates are political rates, made without reference to costs, and what is the basis for your statement that no reference to costs was made by TVA?

MR. WEADOCK: Because they practically say so in one of their reports, in their 1935 report.

* * *

MR. BIDDLE: Do you still stand by that statement, that the TVA rates are political, made without reference to cost?

(*Continued on page* 552)

Highlights of Commercial Committee Activity for 1939

By C. E. Greenwood
Commercial Director, Edison Electric Institute

THE Sales Committee for the present administrative year swung into action with a meeting at Cleveland, on Nov. 15, at which Chairman Harris E. Dexter presided. On the previous day, several committees held their initial meetings for the administrative year, discussing questions of common interest bearing on utility load building practices and policies, their conflicting problems and procedure in solving them. Out of these discussions plans of activity were crystallized for obtaining information that would prove of helpful service to the industry.

There was a continuous note of optimism throughout the deliberations of the General Sales Committee. The prevailing spirit was that 1939 will be a better year and every effort will be made commercially to contribute to that end.

No attempt in this article is made to give the complete work program of any one committee, but rather as the title implies, a brief insight into the thinking of each group. Following customary practice the National Promotional Programs will be presented and distributed in printed Plan Books. An outline of committee activity follows:

Air Conditioning (E. W. GRAY, *Chairman*)

The two Air Conditioning Committees of last year for the study of the technical and the promotional phases of air conditioning were merged into one this year, but both will receive due attention.

Such subjects as three-phase supply to residences, capacities of room coolers, and the storage type of refrigeration are on the schedule of committee effort. The practice of central station companies vary in their policy of service supply. Some companies find it economically undesirable to provide three-phase service in residential areas. Other companies that serve denser areas prefer three-phase service and supply it within certain limits. It appears impractical to attempt any standardized rulings for this reason, but a survey of thinking on this subject will be undertaken.

It has been recognized that in large residences the condensing unit must be sized for peak conditions involving high occupancies at high outdoor temperatures, yet during many hours the load imposed on a condensing unit is much smaller and the unit operates for short periods only. A technical question arises for discussion as to the advisability of the installation of two machines, one to do the air conditioning job under average conditions with a second machine cutting in only as required.

Room cooling is to be studied from the angle of rated capacity, which will be done jointly with the Air Conditioning Manufacturers Association. Also this appears to be the time for considering the desirability of national coordinated action for the promotion of room coolers.

The committee has attempted in the past to collect statistical information on air conditioning installations for national publicity but the coverage was insufficient to project for the industry on any accurate basis. A completed Report form is now available and it is expected that with wide utility participation it will be possible to develop a basis for helpful statistical reports.

The Committee plans a further study of competition of other fuels operating air conditioning systems.

Lighting Sales Committee (J. E. MUELLER, *Chairman*)

Included in the seven projects which will gain the attention of the Lighting Sales Committee are the evaluating of sales operations, selling lighting to the lower revenue customer, the cooperative selling of lighting and air conditioning, a review of the status of highway lighting and a study of the fluorescent lamp and its application. The question arises so many times of the value of the lighting load, and how much it is economicaly sound for the utility to expend to foster this class of business, that evaluating efforts on lighting sales operation becomes one which merits careful study. Naturally a broad viewpoint on this subject will prevail.

The benefits of lighting and its application to the low income group of customers is of concern to all utility men and will be given the attention it deserves. Likewise the cooperative selling of lighting and air conditioning and the right approach to the subject will prevent the selling-down of lighting by air conditioning groups. It sometimes occurs that the largest heating load in an establishment is the lighting load and air conditioning salesmen are too ready to recommend that the customer cut his wattage on lighting in order to limit the amount of cooling capacity.

There have been interesting developments in the field of highway lighting and the Lighting Sales Committee believes this is the opportune time to produce a report which will indicate the status of development in this field of lighting. Likewise the fluorescent lamp which has been the source of much curiosity and of speculation will receive the attention of the committee. A close coordination will be followed through with the Lighting Service Committee of IES.

Home Lighting Equipment Sales Committee (F. S. DEWEY, *Chairman*)

Recognizing that there has been a lag in the manufacture and sale of lighting equipment, especially for domestic application of fixtures, that will bring to the householder the high standards of illumination that have been impressed on the public mind by the Better Light-Better Sight Bureau, a new committee was organized this year for the promotion of equipment. This will include IES and other portables, fixtures and Mazda lamps.

A Plan Book for the activity will be distributed shortly which will contain tested selling plans of utility companies. This project was discussed in an earlier article of the BULLETIN and reference to the Plan Book will indicate clearly the objectives of the committee. Every reader of the BULLETIN interested in lighting promotion is urged to obtain a copy. There are two points in the Plan Book which merit re-emphasis. The general purpose of the program is

to advance and promote the idea of all-year-round selling of lighting equipment. On the other hand there will be two periods suggested over the year for intensive campaigns. One of these will be in February and March, and a second in October and November of 1939.

The slogan of the activity is ENJOY BETTER LIGHT TONIGHT which expresses the message that the committee wants to accompany every sale.

Industrial Power and Heating Committee (J. F. GASKILL, *Chairman*)

Continuity in the membership of this committee is matched with continuity of its program. Recently a report on *Load Availability for Central Stations in Oil Refineries,* an item of last year's program, was printed and distributed. A report on *Electric Melting Furnaces* has been moved forward to the point that publication can be expected within the early part of 1939.

A feature of the Power Committee's program has been its study of Diesel and gas engines. Information on case histories has been obtained on this subject, making it possible to ultimately issue a report on *Diesel Engine Competition.*

Again in 1939 two or more sessions of the General Sales Conference will be devoted to power subjects. The committee is working on a program which will stimulate interest in attendance and should be a helpful addition to industrial power and heating information.

Electric Refrigeration Committee (J. F. PORTER, JR., *Chairman*)

There are certain questions that confront today the commercial men in connection with load development through household refrigeration to which the Committee will give early attention. Outstanding among these are the subjects of replacement, saturation, trade-ins, competition and the like. It is proposed that informative data on these subjects be obtained from a survey of the field to be used as a basis of guiding sales policies.

Another important item is the financing of refrigerator sales, particularly the merits of the meter-plan. Some companies have been able to hurdle the downward trend of refrigerator sales for the past year by making it easy and convenient for the customer to pay for a refrigerator through the meter plan. The findings from the surveys will appear in interim reports of the committee.

Attention this year will be given likewise to the study of commercial refrigeration in addition to domestic.

Electric Cooking Committee (R. B. ROBERTS, *Chairman*)

Unavoidable circumstances have prevented the Cooking Committee from meeting, but the Chairman has outlined a fact-finding program hitting on the outstanding phases of range promotion. The importance of the more rapid development of electric cooking with special emphasis on ways and means for bringing down costs of wiring will be an important point for discussion. Also on the program are competitive fuels and the further acceptance of electric cooking in public projects.

Another new study scheduled is the use of electric cooking for instruction in Home Economics courses.

Electric Water Heating Committee (G. C. KING, *Chairman*)

In general the program on water heating is to study sales opportunities and sales handicaps and to explore the further possibilities of applications which will tend to widen the popularity of the service. The campaigns operated through the Modern Kitchen Bureau on water heating, along the lines of range promotion, cover specific promotion.

Consideration will be given to all principal classes of electric water heating service supplied by two types of heaters—storage and small non-pressure heaters. The committee points out that one of the handicaps to the more general sale of storage heaters is the length of the charging period and the need for increase in the charging hours. As there is very little uniformity in the heater specifications as adapted by various utility companies, there is need for a study to determine the combination of factors most satisfactory on their given operating conditions. Thus, in addition to the length of charging period, consideration will be given to tank capacity, wattage, number of elements, and on and off-peak operation. This will require a review and check-up by individual companies.

Several utilities are now obtaining satisfactory results in service from non-pressure heaters in both commercial and residential service and this experience will be compiled for a report of the committee.

To indicate the detail of the proposed study, the outline of subjects to be included under Sales Development are electric water heating for low income customers, for renters, water heating service without off-peak control and for use in hard water areas; selling the builder and architect; the customer's reason for buying; non-pressure water heaters for commercial customers and for farm homes; low wattage and long charging periods. The motivating thought of the committee is that experience is the best teacher.

Dealer Coordination (S. P. VECKER, *Chairman*)

The subject of dealer participation in appliance promotion is ever new. Over the last decade there has been marked growth in the number and in the strength of the dealer group. Department, furniture and hardware stores have become prominently identified with the distribution of electrical equipment. It is estimated that no more than 15 per cent of the total volume of household appliance sales will be sold by the utilities in 1938.

There are numerous methods employed for utility-dealer participation in sales promotion. The Dealer Coordination Committee will collect and make a general review and evaluation of the plans now in existence. An early meeting of the committee to outline details is anticipated.

Sales Promotion Committee (DON PARRY, *Chairman*)

Many have sensed the need of a committee on advertising and sales promotion to supplement the good work that is being accomplished by the Public Utilities Advertising Association. A tie-in with that work, and a review and study of our commercial advertising by a group of advertising men has been deemed essential.

Unavoidable delay in organization has prevented a meeting of this committee at time of writing, but it is expected that this committee can make a distinct contribution to our promotional efforts.

Wiring Committee (E. A. BRAND, *Chairman*)

This is to be an important year in wiring development. The Adequate Wiring Bureau, on which the Institute has two representatives—Messrs. C. A. Eastman and H. E. Dexter—is achieving effective results in wiring promotion so that the Wiring Committee's consideration along these lines will be with the objective of removing handicaps to more adequate wiring.

Circular 56, *Standards for Electric Service* of the National Bureau of Standards is up for revision and the commit-

tee is taking under advisement proposed revisions for inclusion of modern methods and materials. One of the great needs of the times is the dissemination of accurate and up-to-date information on new wiring materials and methods (for both new buildings and remodeling of existing structures) to utility companies, and through them to contractors, inspectors and others, together with information to interest utilities in the Code changes proposed by our Light and Power Group. To this end the Wiring Committee plans a *Commercial and Industrial Building Re-wiring Folder.* This will contain factual information indicating what steps may be taken in modernizing wiring systems in existing commercial and industrial structures employing raceway systems. It is general experience that conduits in buildings are now so loaded that additional capacities cannot be installed if the usual wiring methods and materials are employed.

Other folders will be prepared on residence wiring promotion. This series of leaflets is contemplated to tell the story in detail of successful residence wiring promotions and to supply information on new wiring materials and methods. The leaflets will be issued from time to time during the year as material becomes available.

Sales Training Committee (C. A. EASTMAN, *Chairman*)

It is of general interest that a special committee of sales executives has been appointed by Chairman Dexter of the General Sales Committee to take under advisement all important requirements of sales training together with ways and means of producing Courses in Sales Training. C. A. Eastman of Ebasco Services, Inc., is Chairman of this committee and as a preliminary move is obtaining a survey of utility needs.

There have been no educational courses offered by the Institute and it is expected that within the next few months a general outline of the possibilities will be available.

Electric Water Systems Council (H. J. GALLAGHER, *Chairman*)

The Council will start its sixth year of coordinated promotion with a new line of promotional pieces for distribution. The Plan Book will combine both the outline of activity and informative data on water systems and their installation for the benefit of the sales people of both utility and dealer. The consumer booklet of which more than 300,000 have already been distributed is to be revised with new dress and new appeal. The present film, *Life in the Country,* is to be available at reduction in price. It is worthy of comment that for the first ten months of 1938 there was but 15 per cent drop in the sale of electric water systems over the previous year, and the pick-up has been so marked in past weeks that it is estimated that the complete year will show equivalent sales to the 1937 output.

Further details will appear in a later issue of the BULLETIN.

Commercial Electric Cooking Council (P. M. ALDEN, *Chairman*)

There was satisfactory distribution of the direct mail pieces produced by the Council last year to support the general message contained in the Plan Book. There were several thousand mailed to prospects for electrical equipment through local utility companies.

The National Conference on Commercial Cooking sponsored by the Council during the period of the National Restaurant Association Convention was even more successful than the first one called in 1937. The President of the Food Service Equipment Association was a speaker. It is also of interest that a speaker on the subject of electricity in the restaurant appeared on the program of the National Restaurant Association, a gratifying indication of cooperation between the two groups.

For 1939 there will be further production of mailing pieces. A new consumer piece, the Penny booklet, carrying an important message of low cost of electrically cooked food is now being distributed.

It is planned to publish starting February, 1939, a monthly News Bulletin to the trade. In order to assist in securing material for this bulletin utility and dealer employees will be paid $10 each for accepted articles on electric installations for commercial cooking. These Bulletins will be available in quantities for use of local utility companies at cost, and it is hoped that there will be many thousands distributed locally, monthly, in this manner. Another feature of the program will be the production of a Sales Training Booklet which will deal with the fundamentals of successful restaurant operation and stress the financial phases of the business in order that the salesman can talk his service from the consumer viewpoint.

Better Light-Better Sight Bureau (C. A. EASTMAN, *Chairman*)

Another organized program starting its sixth year is Better Light-Better Sight. In past years national organization has been perfected and extensive national promotion carried through, and the Bureau is convinced that these social and educational aspects must be carried on. There is recognition of the vital need for re-selling the benefits of good lighting. Perhaps this is the more important and opportune because of the more efficient lighting methods which are imminent.

The Better Light-Better Sight Bureau will strengthen its contacts with other groups having a basic interest in light for seeing and develop material to forward its purpose. *Better Light-Better Sight News* is to be continued in 1939 and it is expected that circulation will be increased and the usefulness of the publication strengthened.

Although appreciation of the importance of the sale of lamps and proper lamp wattages, together with other lighting equipment which will make possible the application of the lighting principles promoted by the Bureau, it has been concluded that it is inadvisable to emphasize in any way the commercial aspects. The new committee on Home Lighting Equipment Sales which has been set-up in the Institute will undertake this phase of promotion and coordinate where necessary with the Better Light-Better Sight Bureau.

Modern Kitchen Bureau (G. E. WHITWELL, *Chairman*)

The power of coordinated industry action is again shown in the results of promotion by the Modern Kitchen Bureau. The output of electric ranges dropped less than other equipment in 1938 as a result of national and local coordinated advertising. The last concentration on range selling was in October carried forward under the banner of *Discovery Month.* A quota was set by the Bureau of 30,000 ranges and 8,000 water heaters. Quotas were assigned to all Regional Directors. There were weekly mailings during the month of October, the first being a Plan Book outlining the details of the monthly campaign which was followed by three announcement folders. An innovation was the conducting of a mailing campaign to reach range dealers. There were three mailings to some 27,000 of them.

In the Water Heater Program two mailings were made to utilities and two were made to more than 14,000 water heater dealers. Although the quotas set were not reached the totals were so close

(*Continued on page* 552)

Personnel of E. E. I. Commercial Committees, 1938-1939

GENERAL SALES COMMITTEE

Chairman, H. E. DEXTER, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.
P. M. ALDEN, Philadelphia Electric Co., Philadelphia, Pa.
E. A. BRAND, Buffalo Niagara & Eastern Power Corp., Buffalo, N. Y.
A. A. BROWN, Oklahoma Gas & Electric Co., Oklahoma City, Okla.
F. A. COFFIN, Wisconsin Electric Power Co., Milwaukee, Wis.
C. A. COLLIER, Georgia Power Co., Atlanta, Ga.
R. D. CUTLER, The Hartford Electric Light Co., Hartford, Conn.
J. DANIELS, Boston Edison Co., Boston, Mass.
J. E. DAVIDSON, Nebraska Power Co., Omaha, Nebr.
D. M. DEBARD, Stone & Webster Service Corp., New York, N. Y.
F. S. DEWEY, The Cincinnati Gas & Electric Co., Cincinnati, Ohio.
C. A. EASTMAN, Ebasco Services Incorporated, New York, N. Y.
R. E. FISHER, Pacific Gas and Electric Co., San Francisco, Calif.
J. F. GASKILL, Philadelphia Electric Co., Philadelphia, Pa.
E. W. GRAY, Oklahoma Gas & Electric Co., Oklahoma City, Okla.
E. F. JEFFE, Consolidated Edison Co. of New York, Inc., New York, N. Y.
G. C. KING, Brockton Edison Co., Brockton, Mass.
C. E. MICHEL, Union Electric Co. of Missouri, St. Louis, Mo.
G. E. MILLER, The Cleveland Electric Illuminating Co., Cleveland, Ohio.
J. E. MUELLER, West Penn Power Co., Pittsburgh, Pa.
DON PARRY, The Hartford Electric Light Company, Hartford, Conn.
J. F. PORTER, JR., Kansas City Power & Light Co., Kansas City, Mo.
P. H. POWERS, West Penn Power Co., Pittsburgh, Pa.
R. B. ROBERTS, Florida Power & Light Co., Miami, Fla.
W. H. SAMMIS, The Commonwealth & Southern Corp., New York, N. Y.
H. M. SAWYER, American Gas & Electric Co., New York, N. Y.
M. E. SKINNER, Buffalo Niagara & Eastern Power Corp., Buffalo, N. Y.
H. P. J. STEINMETZ, Public Service Electric & Gas Co., Newark, N. J.
R. H. TILLMAN, Consolidated Gas, Electric Light & Power Co., Baltimore, Md.
S. P. VECKER, Carolina Power & Light Co., Raleigh, N. C.
G. E. WHITWELL, Philadelphia Electric Co., Philadelphia, Pa.
H. E. YOUNG, Northern States Power Co., Minneapolis, Minn.

C. E. GREENWOOD, Commercial Director, Edison Electric Institute, New York, N. Y.

AIR CONDITIONING COMMITTEE

To give consideration to the technical developments of equipment and its effect on utility lines; to survey progress in development of this class of service in home, commerce and industry; to study the possibilities of Room Cooling with portable apparatus and its application in offices and homes; to consider the development of quarterly statistical information on sales progress.

Chairman, E. W. GRAY, Oklahoma Gas & Electric Co., Oklahoma City, Okla.
E. A. FREUND, Union Electric Co. of Missouri, St. Louis, Mo.
E. M. JORGENSEN, Central Arizona Light & Power Co., Phoenix, Ariz.
G. L. MACGREGOR, Dallas Power & Light Co., Dallas, Texas.
A. D. MARSTON, Kansas City Power & Light Co., Kansas City, Mo.
H. H. MATHER, Philadelphia Electric Co., Philadelphia, Pa.
C. H. RANDOLPH, Wisconsin Electric Power Co., Milwaukee, Wis.
S. S. SANFORD, The Detroit Edison Co., Detroit, Mich.
R. H. TEN EYCK, Consolidated Edison Co. of New York, Inc., New York, N. Y.

DEALER COORDINATION COMMITTEE

To report on merchandising trends among electric utility companies; to appraise the results of various promotional practices for producing sales of household equipment; to study the comparative effectiveness of trade outlets, and to encourage the idea of local utility-dealer coordination in load building effort.

Chairman, S. P. VECKER, Carolina Power & Light Co., Raleigh, N. C.
W. L. BERRY, Union Electric Co. of Missouri, St. Louis, Mo.
A. A. BROWN, Oklahoma Gas & Electric Co., Oklahoma City, Okla.
O. R. DOERR, Pacific Gas and Electric Co., San Francisco, Cal.
E. J. FITZ GERALD, Niagara Hudson Power Corp., New York, N. Y.
LEWIS A. LEWIS, The Washington Water Power Co., Spokane, Wash.
F. H. MCCULLOUGH, Kansas Gas & Electric Co., Wichita, Kan.
J. E. NORTH, The Cleveland Electric Illuminating Co., Cleveland, Ohio.
D. R. SMITH, Consolidated Gas, Electric Light and Power Co., Baltimore, Md.
WELLS M. STANLEY, Alabama Power Co., Birmingham, Ala.
W. M. WALSH, The Connecticut Light & Power Co., Hartford, Conn.

ELECTRIC COOKING COMMITTEE

To give consideration to the broad aspects of electricity as a cooking fuel as applied to the range and also to the roaster and other table cookery devices; to make market studies if essential; to study sales methods and handicaps to promotion, together with service and maintenance costs.

Chairman, R. B. ROBERTS, Florida Power & Light Co., Miami, Fla.
F. A. COFFIN, Wisconsin Electric Power Co., Milwaukee, Wis.
L. R. PARKER, The Commonwealth & Southern Corp., New York, N. Y.
W. SCHMIDT, Buffalo Niagara & Eastern Power Corp., Buffalo, N. Y.
J. M. STEDMAN, Pennsylvania Power & Light Co., Allentown, Pa.

ELECTRIC REFRIGERATION COMMITTEE

To develop data on present progress, and on future opportunities for sales of domestic type refrigerators, including study of saturations and replacements; to investigate present sales methods and their effectiveness; the use of daily payment plan requiring only small denomination coins, and to make recommendations for obtaining and holding this important class of business.

Chairman, J. F. PORTER, JR., Kansas City Power & Light Co., Kansas City, Mo.
R. C. GEPPERT, Nebraska Power Co., Omaha, Neb.
O. M. JACKSON, Georgia Power Co., Atlanta, Ga.
H. E. MEADE, New Orleans Public Service Inc., New Orleans, La.
G. B. RICHARDSON, Texas Power & Light Co., Dallas, Texas.
B. A. SEIPLE, Jersey Central Power & Light Co., Asbury Park, N. J.

ELECTRIC WATER HEATING COMMITTEE

To study sales opportunities and sales handicaps to electric water heating service; to explore the further possibility of applications which will tend to widen the popularity of this service, and to survey present status and trends in competition.

Chairman, G. C. KING, Brockton Edison Co., Brockton, Mass.
R. S. BELL, The Commonwealth & Southern Corp., New York, N. Y.
T. M. FULFORD, Virginia Electric & Power Co., Richmond, Va.
R. E. GALE, Idaho Power Co., Boise, Idaho.
PATRICK JOHNSON, Puget Sound Power & Light Co., Seattle, Wash.
A. V. S. LINDSLEY, The Connecticut Light & Power Co., Hartford, Conn.
A. MONTY, Philadelphia Electric Co., Philadelphia, Pa.
L. F. RIEGEL, Gulf States Utilities Co., Beaumont, Texas.
D. E. STULTZ, Potomac Edison Co., Hagerstown, Md.
C. M. TURNER, Ebasco Services Incorporated, New York, N. Y.

HOME LIGHTING EQUIPMENT SALES COMMITTEE

A committee organized primarily to develop a National activity on lighting equipment. Incidental to the program, the committee to make an analysis of local market possibilities; to encourage the adequate and consistent training of retail sales people; to stimulate local dealer interest in the sale of more and better lighting equipment and to provide for consumer education in its numerous forms.

Chairman, FRED S. DEWEY, The Cincinnati Gas & Electric Co., Cincinnati, Ohio.
C. T. BAKEMAN, Puget Sound Power & Light Co., Seattle, Wash.
R. S. BELL, The Commonwealth & Southern Corp., New York, N. Y.
C. A. COLLIER, Georgia Power Co., Atlanta, Ga.
J. M. DALY, Central New York Power Corp., Syracuse, N. Y.
H. H. DINKINS, JR., Ebasco Services Incorporated, New York, N. Y.
H. A. KEYS, Public Utility Engineering & Service Corp., Chicago, Ill.
L. R. LESLIE, Delaware Power & Light Co., Wilmington, Del.
G. L. MACGREGOR, Dallas Power & Light Co., Dallas Texas.
W. E. MCCREERY, Blackstone Valley Gas & Electric Co., Pawtucket, R. I.
D. S. MELVIN, Consolidated Edison Co. of New York, Inc., New York, N. Y.
G. W. MILLIKEN, Southern Colorado Power Co., Pueblo, Colo.
J. F. PORTER, JR., Kansas City Power & Light Co., Kansas City, Mo.
HARRY RESTOFSKI, West Penn Power Co., Pittsburgh, Pa.
C. A. STEVENS, Public Service Electric & Gas Co., Newark, N. J.

G. R. TRUMBULL, Edison Electric Institute, New York, N. Y.

WIRING COMMITTEE

To collect and make available information on the development of wiring materials and of wiring practices; to keep informed on Code practices and Code changes; and to add to such technical studies consideration of ways and means for more rapid progress in the sale of adequate wiring in the Domestic, Commercial and Industrial fields.

Chairman, E. A. BRAND, Buffalo Niagara & Eastern Power Corp., Buffalo, N. Y.
O. K. COLEMAN, American Gas & Electric Co., New York, N. Y.
F. E. DAVIS, Consumers Power Co., Jackson, Mich.
G. W. HART, Ebasco Services Incorporated, New York, N. Y.
G. E. MILLER, The Cleveland Electric Illuminating Co., Cleveland, Ohio.
HARRY RESTOFSKI, West Penn Power Co., Pittsburgh, Pa.
H. L. THOMSON, The Hartford Electric Light Co., Hartford, Conn.
W. C. WAGNER, Philadelphia Electric Co., Philadelphia, Pa.

SALES PROMOTION COMMITTEE

To study the most effective methods of presenting to the public through advertising and promotion the story of what electricity and electrical appliances can do; to coordinate with Public Utilities Advertising Association in its promotion of better newspaper copy and sales campaign material; to ascertain the demand for syndicated direct-by-mail and other promotional material and take under advisement the offering of such service through our Association; to advise on advertising copy and advertising practices.

Chairman, DON PARRY, The Hartford Electric Light Co., Hartford, Conn.
S. J. BALLINGER, San Antonio Public Service Co., San Antonio, Texas.
H. P. MEGARGEE, American Gas & Electric Service Corp, New York, N. Y.
H. S. METCALFE, West Penn Power Co., Pittsburgh, Pa.
HENRY OBERMEYER, Consolidated Edison Co. of New York, Inc., New York, N. Y.
R. F. PABST, Ebasco Services Incorporated, New York, N. Y.

INDUSTRIAL POWER AND HEATING COMMITTEE

To study the commercial and industrial applications of electric power particularly in the "competitive" class; to prepare interim reports on any special power or heating loads that may merit such consideration; to advise on questions of advertising or selling of Purchased power; to be alert to new developments in equipment that may affect progress in load building in this field of effort.

Chairman, J. F. GASKILL, Philadelphia Electric Co., Philadelphia, Pa.
FRANK AUSTIN, Houston Lighting & Power Co., Houston, Texas.
H. W. BAY, Public Service Electric & Gas Co., Newark, N. J.
THOMAS BURNS, American Gas & Electric Service Corp., New York, N. Y.
J. H. COATES, Ebasco Services Incorporated, New York, N. Y.
EARL KAVANAUGH, The Detroit Edison Co., Detroit, Mich.
F. MCQUILLIN, West Penn Power Co., Pittsburgh, Pa.
G. E. MILLER, The Cleveland Electric Illuminating Co., Cleveland, Ohio.
H. C. MITCHELL, Consolidated Edison Co. of New York, Inc., New York, N. Y.
C. H. PURDY, Consumers Power Co., Jackson, Mich.
CHARLES SNYDER, Monongahela West Penn Public Service Co., Fairmont, W. Va.
W. H. STUEVE, Oklahoma Gas & Electric Co., Oklahoma City, Okla.
C. P. YODER, Buffalo Niagara & Eastern Power Corp., Buffalo, N. Y.

LIGHTING SALES COMMITTEE

To make effective the principles promulgated in Better Light-Better Sight in all classifications of our business; to investigate new lighting practices and develop information on local sales methods outstanding in results; to make a study of the status of Highway Lighting and any recommendations desired for its further extension, and to prepare such reports on lighting promotion that will meet a demand by the utilities.

Chairman, J. E. MUELLER, West Penn Power Co., Pittsburgh, Pa.
W. J. AMOSS, New Orleans Public Service Inc., New Orleans, La.
C. T. BREMICKER, Northern States Power Co., Minneapolis, Minn.
HARRY CURTIS, The Tennessee Electric Power Co., Chattanooga, Tenn.
I. L. ILLING, Wisconsin Electric Power Co., Milwaukee, Wis.
PAUL MANCHESTER, Blackstone Valley Gas & Electric Co., Pawtucket, R. I.
H. M. SHARP, Buffalo Niagara & Eastern Power Corp., Buffalo, N. Y.
W. A. Stannard, Consumers Power Co., Jackson, Mich.
M. N. WATERMAN, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.

Problems in Accounting

(*Continued from page* 516)

industry, which all agree has not reached a static condition by far, the problem can be solved, I am sure, over a reasonable number of years, but no one solution will probably fit all conditions. The solution, therefore, would seem to depend upon the facts and circumstances in each individual case.

In concluding this phase, let me urge you again, and most sincerely, to know and understand the depreciation problems of your company. There is no other single phase of public utility accounting and finance which is so important at the present time.

Now that the tumult and the shouting have died, it may be safe to venture a word about original cost. Public utilities, as defined by the Federal Power Act, are required to submit original cost studies by the end of this year. The progress being made in these studies is generally quite gratifying. The Commission now has a Division of Original Cost, consisting of accountants and engineers who will make field investigations of company studies. Public utilities are urged to get their studies in early to the end that we may make the necessary investigations and get this important matter behind us with the least possible delay and expense.

It is my lot very frequently to attend meetings of other professional bodies where accounting and accountants have been the subject of a great deal of criticism. Thus it is a commonplace occurrence for economists to say that the principles of accounting are immature and of no benefit, and the lawyers are prone to say that accounting is worthwhile only to the extent it follows the theories of the law. Both are wrong. Accounting has come into its own and its principles are not dependent and should not be dependent upon any other art or science.

I have been studying economics, in and out of school, for many years and have attended many meetings of the American Economic Association, of which I am a member. I respect, admire and enjoy the science of economics, but that science should not control accounting principles and any attempt to do so in a major way will indubitably result in disaster. Economics will help the accountant tremendously as economics but not as accounting. Thus the knowledge of public utility economics should be of immense benefit to the auditor examining the books of public utilities; a knowledge of merchandising of great benefit to the department store auditor; a knowledge of the location and marketing of natural resources a real help to the coal mine accountant; a knowledge of money and banking of real assistance to the auditor of a bank. I would be the last person to discourage the study of economics by accountants—in fact quite the reverse is true. But to repeat, the study should be of economics as economics and not economics masquerading as accounting.

Accounting is a noble profession—I beg of you, do not sacrifice its principles without knowing well the effect of what you do. Remember Paciolo wrote all that was to be known about accounting long before Adam Smith wrote all there was to be known about economics. Remember that the chief criticisms of accounting have their sources in changing price levels and business cycles. These matters belong to the realm of the economist. When the *homo economious* solves these problems, his criticisms of accounting will largely disappear into thin air.

Let me urge you again, guard your heritage well for it is a valuable one.

Due to my pedagogical training, perhaps, I like to revert every once in a while to the conception that accounting is a social science. If financial transactions serve society, then accounting serves too, for financial transactions have their roots and foundations in accounting statements. All of us, I am sure, have seen large sums of money change hands, based upon accounting studies. It is no idle thought to say that the statements you prepare influence, even decide, financial transactions by persons wholly unknown to you and remote from your places of labor. I sometimes marvel at the faith which is accorded statements prepared by accountants. I marvel because I know how easy it is—just a few strokes of the pen—to change a woeful looking statement into one having the appearance of prosperity.

This confidence and trust of the public naturally carries with it tremendous social responsibilities. In a sense, we are charged with a public trust over which we must ever be watchful. To restate Plato, knowledge and courage are the stuff of which accountants should be made. It gives me great pleasure to say that in some twenty years of association with public and private accountants, I have seen many fine examples of the proper blending of these attributes.

COMPARISON OF COMPANIES USING THE VARIOUS METHODS OF DEPRECIATION AND THE EXTENT AND AMOUNT OF THEIR DEPRECIATION IN RESPECT TO THEIR ELECTRIC PLANT ACCOUNTS

	Number of Companies		Electric Plant		Total Electric Depreciation Reserve	% of Electric Depreciation Reserve to Electric Plant
% of Classes of Prop.	6	5.0%	$ 44,288,007	.8%	$ 8,927,751	20.16
Composite %	15	12.4	738,668,139	13.8	144,277,247	19.53
% of Revenue	8	6.6	999,845,309	18.7	135,169,530	13.52
Revenue less Mtce .	19	15.7	363,470,592	6.8	48,295,129	13.29
Mills per Kwhr ...	1	.8	36,585,952	.7	4,601,488	12.58
Sinking Fund	7	5.8	215,428,318	4.0	30,274,665	14.05
Combination	6	5.0	353,820,178	6.6	50,715,578	14.33
Comm. orders, etc..	6	5.0	394,017,650	7.3	41,867,336	10.63
Arbitrary	43	35.5	2,109,803,311	39.4	153,819,812	7.29
Not Stated	10	8.2	101,803,291	1.9	16,843,610	16.55
	121	100.0%	$5,357,730,747	100.0%	$634,792,146	11.85

Simplification of Reports

(*Continued from page* 511)

constant willingness to present our problems and to discuss our difficulties informally, to the end that reports and regulations can be made as simple as possible. Fortunately, some of the commissions and their staffs appear to appreciate the dangers of "arm chair" regulation, and to recognize the need for closer contacts and better understanding of the practical problems in the field. Thus, as a matter of self-interest, and in the broader interest of practical rather than theoretical regulation, we should take every opportunity to cooperate with governmental agencies in developing their administrative processes along simple, practical lines.

These efforts should be directed not only towards Federal agencies, where opportunities have recently been presented, but towards state agencies as well, where the growing burden of reports shows the need for simplification and for coordination with Federal requirements.

Federal and State Regulation, and Management Attitudes

(*Continued from page* 514)

The added responsibilities with which regulatory agencies are charged are matched by added responsibilities for management. The greater reach of commission powers required more information about your industries and their operations than formerly. Also these data need to be arranged and set forth in an informative manner if they are to form a basis for reasonable and constructive commission action and a basis for intelligent opinions on the part of the investing and consuming public. For management to meet this responsibility, it seems to me necessary to be continually alert and to investigate and analyze the objectives of new regulations.

I do not expect that conflicts of interest and differences of opinion, either as to aims or methods will disappear. That millennium, if it be one, which I doubt, is not "around the corner." Grant that past differences of opinion will continue, and perhaps become more violent, does it then follow that each party should go its own way and "never the twain shall meet"? I do not think so. Despite ardent differences of opinion, I believe there is room at least for consultation on technical questions of fact and techniques of getting facts. Even though we agree to disagree, consultation on some matters affords a beneficial opportunity for a mutual understanding of differing points of view. We have proceeded on this theory in the works of our Committee on Statistics and Accounts.

Especially in the field of joint regulation, the potentialities of conflicting requirements suggest a need for some degree of consultation and forbearance. I can only see added inconvenience and expense for management if conflicting requirments on major questions were allowed to develop. Likewise on the regulatory side of the fence disunion breeds weakness. The only remedy within my view is forbearance by all parties and a deliberate attempt to cultivate national uniformity where local interests do not predominate. At the same time it should be recognized that an effective national standard will and should be more exacting than the most lenient of varying local standards. A leveling upward process is inevitable.

In one respect management and regulation are in the same boat. They are both constantly before the bar of public opinion. Commissions must reckon with the public impression as to whether regulation is "delivering the goods." Similarly, utilities should be concerned with their public relations, and management which is more obstructive than compliant should expect to reap the consequences of public demand for more stringent regulation or for public ownership. For this reason a disposition to make joint state-Federal regulation work effectively in the public interest takes on added significance. In this connection we all may well recognize that in the public mind an industry may be judged by the behavior of its worst minority rather than by its better elements. A cooperative attitude on the part of most utilities might be nullified in its effect on public relations by the behavior of the unreconstructed few.

In conclusion, there will be little dispute that electric and gas utilities have made great strides in technical, engineering accomplishments. As the public has become more aware of these technical feats, it has become more conscious of the public functions that are thus served. The challenge at the present time is to bring the economic and public relations of these industries abreast of their technical advances. To meet this challenge in my judgment requires a continual testing of aims and methods. And the standards for this testing are no longer those appropriate to an industry regarded merely as a private function affected with a public interest. Rather these standards are derived from a growing belief that electric and gas services constitute public functions entrusted during good behavior to private capital.

Depreciation Principles

(*Continued from page* 522)

not even be judged (much less *determined*) for a considerable proportion of what may ultimately prove to have been the property's actual service life. I emphasize the words *"realized"* and *"completed"* because until the basis of accounting is changed to record changes in *value* the accountant's recording is merely an allowance in anticipation of losses which become realized in the future. I emphasize the word *"interim"* because that is the nature of his provision until the loss becomes realized.

Third, ideally the accountant's task, despite the difficulties of estimating, is to apportion the cost of the facilities being consumed in service over the useful life of those facilities. I say "ideally" because at least two important characteristics of property consumption must be recognized. First is the fact that the apportionment technique is an estimating problem and the estimates of useful lives may prove to be too short or too long. The erroneous estimate does not alter the essential nature of the property as a long-term cost of operation. Secondly, the factor of obsolescence often operates to justify the junking of property before the end of its physical life because a substitute facility produces sufficiently lower overall costs even *after* allowing for an amortization of the unused part of the superseded property. Proration of the unprovided for loss of the superseded facility *after* its retirement may thus be both proper and in keeping with the reasons creating the realized loss.

Fourth, the accountant's recordings of annual provisions in anticipation of property consumption, and the balances in his reserves, do not purport to measure the loss occurring during the year or accrued to date for the purposes of determining the value of property in the rate making sense.

Perhaps some of you have done as I have—read the expressions of our predecessors who have grappled with this difficult problem. I draw solace from the fact that they too had their differences of opinion. Much more can be said and will be said as to the proper principles of depreciation. Perhaps Frank R. Ford of Ford, Bacon and Davis gave the truth of the matter, insofar as it concerns the utility accountant of today, when he wrote in 1910, after a thorough analysis of the subject, "After all is said, the treatment of depreciation is largely a financial problem." The wise path for all concerned in utility accounting to select in finding our way through the conflicting theories about depreciation, may be the one suggested by the statement.

Some Engineering Factors

(*Continued from page* 530)

practice of the universe, fundamental and otherwise, to the point where we have all but appointed a commission to supervise the rising and the setting of the sun, to shortly hear a demand that something be done about it.

Second thought, of course, should immediately restore composure, for this Old World can still be reasonably trusted to defend itself against uncontrolled swings to the theoretical limit in all basic matters, else it would have perished long since.

I should like to suggest, however, that a reaction more profitable to the Industry as a whole, and to ourselves as well, would be a revitalization of the recognition of the essentially dynamic nature of the world and all that is therein; for this faith immediately gives us a true star to guide us in our further progress.

If change is thus the normal environment for life, then the judicious support and utilization of development is our only hope of continued existence.

The Power Industry stands today as a shining example of the marvelous accomplishments attainable by working in tune with this fundamental concept.

Normal growth is still our legitimate heritage and our hope of the future. I trust we will not lose our birthright by drifting from the true path of progress through loss of confidence in our future. Let us not forget the faith of our founders in these days of our majority.

CONVENTIONS AND MEETINGS

DECEMBER

5-6	Prime Movers Committee, EEI Headquarters, New York, N. Y.
6	Hydraulic Power Committee, EEI Headquarters, New York, N. Y.
12-14	Second Annual Accounting Conference, EEI-AGA, Palmer House, Chicago, Ill.

JANUARY, 1939

18-20	American Society of Civil Engineers, New York, N. Y.
23-26	American Society of Heating and Ventilating Engineers, Pittsburgh, Pa.
23-27	American Institute of Electrical Engineers, New York, N. Y.

FEBRUARY

5-10	National Electrical Manufacturers Association, Waldorf-Astoria Hotel, New York, N. Y.
6-7	Electrical Equipment Committee, EEI, Statler Hotel, Buffalo, N. Y.
9-10	Transmission and Distribution Committee, EEI, Sagamore Hotel, Rochester, N. Y.

APRIL

12-14	Missouri Association of Public Utilities, Muehlebock Hotel, Kansas City, Mo.

MAY

2-4	Chamber of Commerce of the USA, Washington, D. C.
8-12	National Fire Protection Association, Chicago, Ill.
14-18	National Electrical Manufacturers Association, The Homestead, Hot Springs, Va.
21-25	National Electrical Wholesalers Association, The Homestead, Hot Springs, Va.

JUNE

5-9	EDISON ELECTRIC INSTITUTE, Waldorf-Astoria Hotel, New York, N. Y.

The E.E.I. and the TVA

(*Continued from page* 544)

MR. WEADOCK: I would say yes.

REP. JENKINS: Mr. Chairman, I would like to read upon my own responsibility, a statement from the last report made by TVA itself, to the President of the United States. Here is what it says:

REP. WOLVERTON: After the rates had been fixed?

REP. JENKINS: Yes. It was sent to the President after there had been a year and a half of default in reporting, after Congress compelled them to report. This is June 16, 1938:

"Of the total investment in the Authority's multiple purpose projects, the only definite portion that can be associated with any one purpose is the added costs made necessary by the inclusion of that purpose. Whether the required additional expenditures is warranted is a question of policy, necessitating the consideration of many factors, relative importance of which cannot always be determined by a common unit of measurement. The problem is one of judgment rather than scientific calculation."

MR. BIDDLE: That is right.

REP. JENKINS: That is what they say themselves, and what would they know five years before that, if they didn't know anything last June.

REP. WOLVERTON: I sought to get the same information from Mr. Lilienthal when he was on the stand in Knoxville, and I haven't gotten it yet.

Highlights of Commercial Committees

(*Continued from page* 547)

to the estimates that the campaign was considered an outstanding success.

It gave assurance to the Manufacturer Group contributing to the fund that the Modern Kitchen Program should be continued for 1939.

Information on the subject of the 1939 program appeared in the November issue of the BULLETIN, but it should be recorded here that the following activities will be included: an all-electric kitchen campaign with promotional and advertising material for utilities and dealers interested in *ensemble* selling. There will be a series of five advertisements in the *Saturday Evening Post*. There will be a refrigerator campaign offering tested sales ideas and promotional materials, and a water heating campaign with contests for utility representatives and appliance dealers. The purpose of the latter is to encourage point-of-sale promotion. The innovation feature is the inclusion of electric roasters under Modern Kitchen Bureau promotion with national advertising and aggressive selling.

Readers of magazines will find a "Guess Again" headline which will lead to the thought that "electric cooking costs but half as much as you think."

Annual Sales Conference

The week of March 20, has been set for the Sixth Annual Sales Conference to be held at Chicago. Advance programs will be distributed.